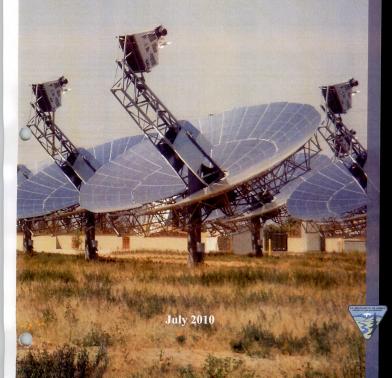
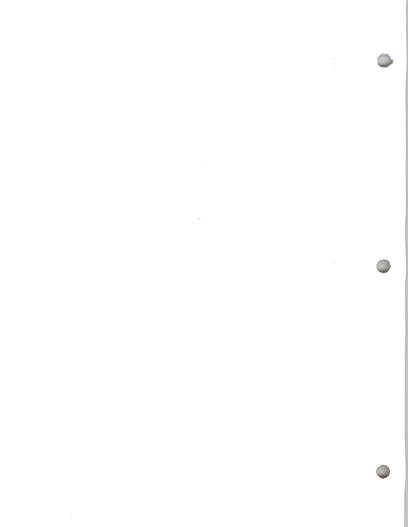
## Final Environmental Impact Statement Imperial Valley Solar Project

**VOLUME 2 OF 2** 





This Final Environmental Impact Statement is provided in two volumes. The contents of these volumes are:

- Volume 1 Signature page through Chapter 11, Glossary; and
- Volume 2
  - · Appendix A: Figures
  - Appendix B: Determination of NEPA Adequacy (DNA)
  - · Appendix C: Scoping Report
  - · Appendix D: Public Comments on the Draft Environmental Impact Statement
  - Appendix E: Seeley Wastewater Treatment Plant Improvements
  - Appendix F: Government-to-Government Consultation
  - · Appendix G: Draft Programmatic Agreement
  - Appendix H: Draft Section 404B-1 Alternatives Analysis for the Imperial Valley Solar Project
  - Appendix I: Archaeological and Built Sites within the Area of Potential Effects for Each Build Alternative

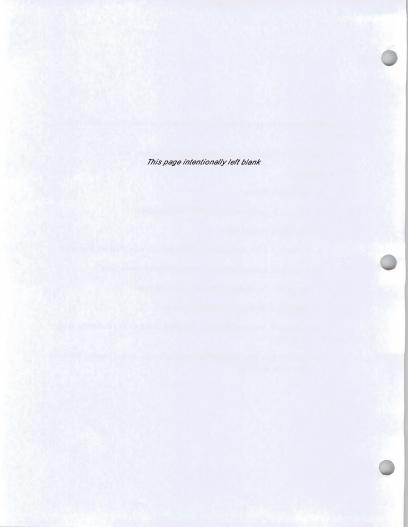
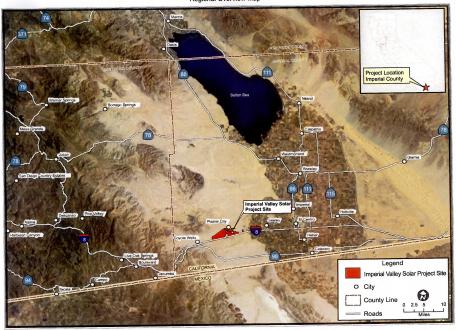


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FIGURE 2-1 Regional Overview Map



SOURCE: SA/DEIS (February 2010).

FIGURE 2-2 Imperial Valley Solar Project Layout

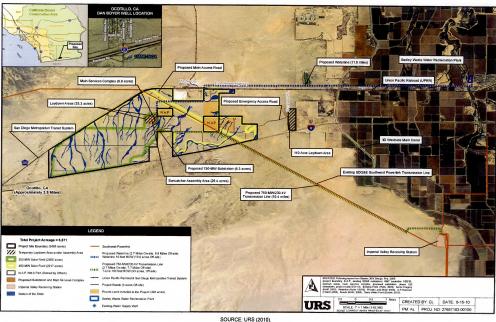
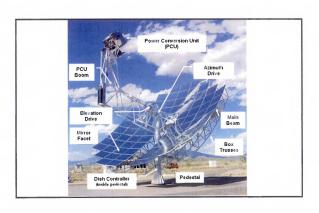




FIGURE 2-3 SunCatcher Details





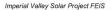
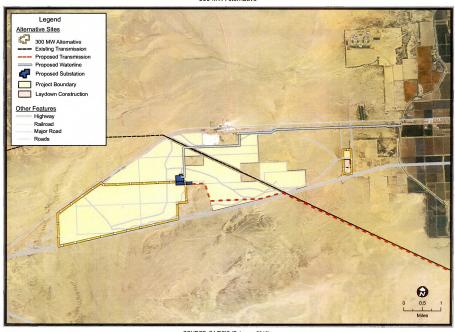


FIGURE 2-4 300 MW Alternative



SOURCE: SA/DEIS (February 2010).



FIGURE 2-5 Drainage Avoidance Alternative #1

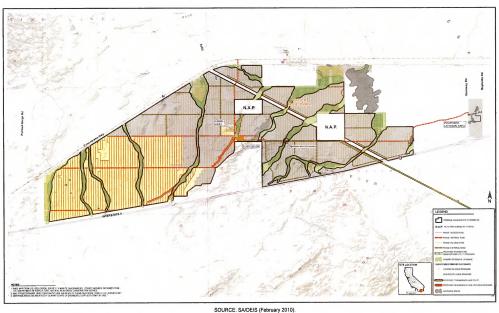
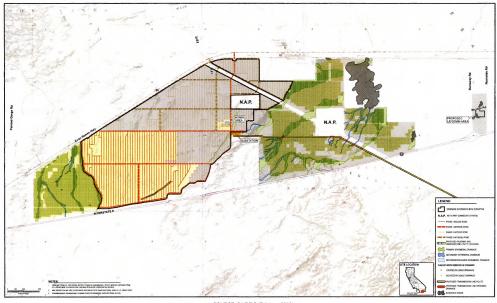




FIGURE 2-6
Drainage Avoidance Alternative #2



SOURCE: SA/DEIS (February 2010).

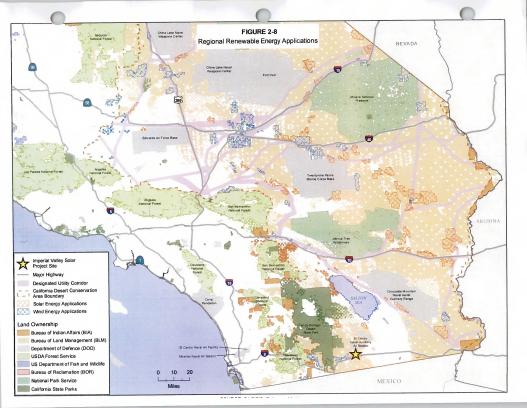


FIGURE 2-7
Alternative Sites Evaluated Under CEQA

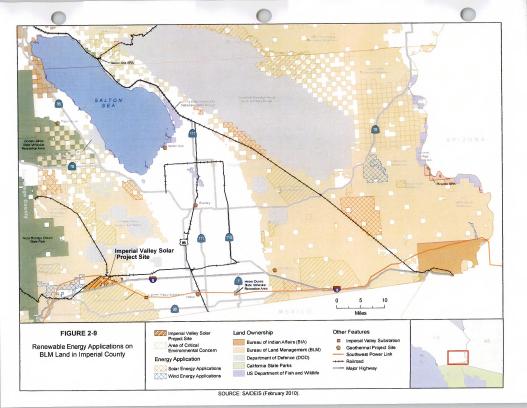


SOURCE: SA/DEIS (February 2010).









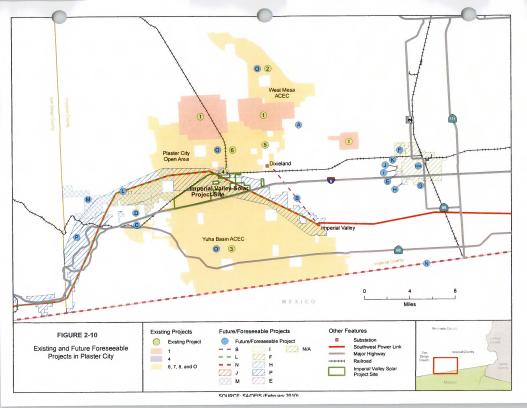


FIGURE 3-1

1996-2007 Historical Ozone and Particulate Matter Air Quality Data, El Centro-9th Street Monitoring Station, Imperial County

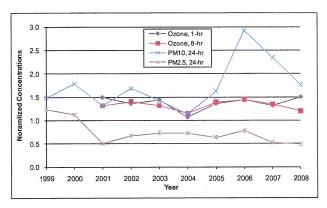


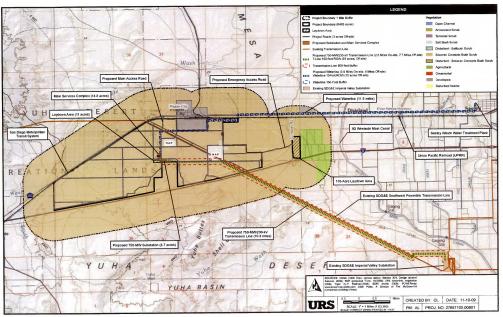
Figure Sources: California Air Resources Board (ARB 2009) and the United States Environmental Protection Agency (EPA 2009).

Figure Note 1: The highest measured ambient concentrations of various criteria air contaminants were divided by their applicable standard and provided as a graphical point. Any point on the chart that is greater than 1 means that the measured concentrations of such an air contaminant exceed the standard, and any point that is less than 1 means that the respective standard is not exceeded for that year. For example, the 1-hour ozone concentration in 2007 is 0.118 ppm/0.09 ppm standard = 1.31.

Figure Note 2: All data are from the EI Centro-9th Street monitoring station, except for the ozone and  $PM_{2.5}$  concentration data in 2000, which are from the Calexico-Ethel Street monitoring station.



FIGURE 3-2
Existing Vegetation Communities



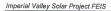


FIGURE 3-3 Land Use Compatibility for Community Noise Environment

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Clearly Unacceptable New	construction of												

Source: Staff Assessment/Draft Environmental Impact Statement (CEC/BLM 2010).

FIGURE 3-4
Views of the Imperial Valley Solar Project Site

Site, Looking Northwest Toward Plaster City, Carrizo Mountain



Site, Looking North Toward Plaster City, Superstition Mountains

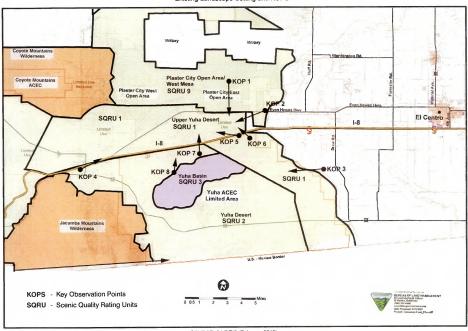




SOURCE: SA/DEIS (February 2010).



FIGURE 3-5
Existing Landscape Setting and KOPS



SOURCE: SA/DEIS (February 2010).





Plaster City from Middleground Distance



Plaster City



Plaster City Open Area



Creosote Scrub Vegetation



Desert Pavement



Southwest Powerlink



FIGURE 3-7
KOP #1 - Existing View from Plaster City OHV Open Area





FIGURE 3-8 KOP #2 - Existing View from Nearby Residence on Evan Hewes Highway

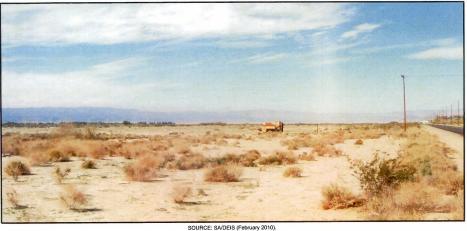




FIGURE 3-9 KOP #3 - Existing View from Residence to Proposed Transmission Line



FIGURE 3-10

KOP #4 - Existing View from Town of Ocotillo



FIGURE 3-11 KOP #5 - Existing View from I-8 Near Dunaway Road





FIGURE 3-12 KOP #6 - View from Route 274 (de Anza National Historic Trail) near Dunaway Campground

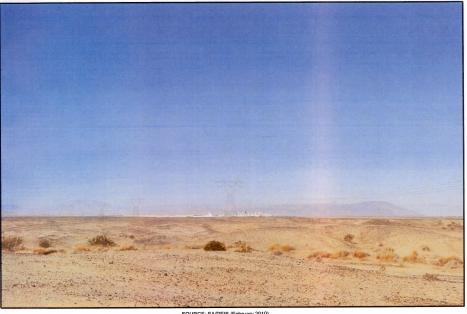




FIGURE 3-13

KOP #7 - View from Overlook Campground Route 274 (de Anza National Historic Trail)

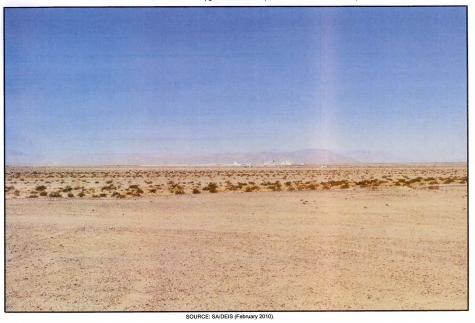




FIGURE 3-14 KOP #8 - View from Vicinity of the Yuha Geoglyphs (de Anza National Historic Trail)

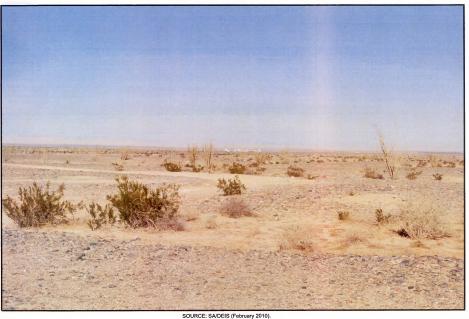
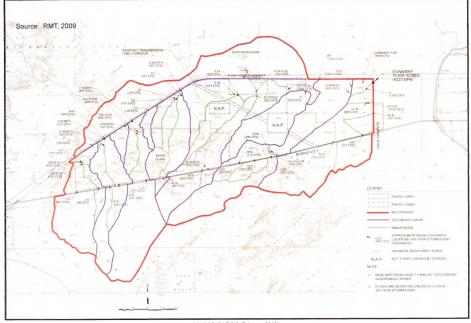




FIGURE 3-15
Drainage Basins and 100-Year Peak Discharges



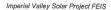


FIGURE 3-16 FEMA Floodplain

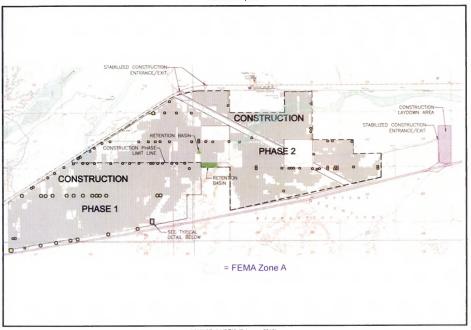


FIGURE 3-17
Applicant's Flood Zone Delineation

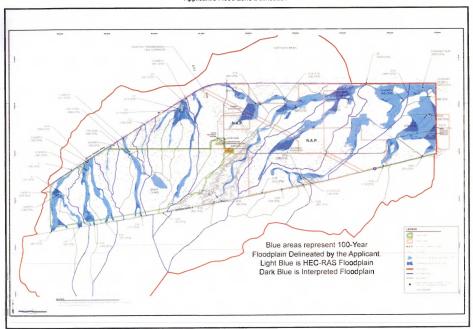


FIGURE 4-1 KOP #1 - Simulated View from Plaster City OHV Open Area





FIGURE 4-2 KOP #2 - Simulated View from Nearby Residence on Evan Hewes Highway





KOP #3 - Simulated View from Residence to Proposed Transmission Line





KOP #4 - Simulated View from Town of Ocotillo



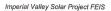


FIGURE 4-5
KOP #5 - Simulated View from I-8 Near Dunaway Road





FIGURE 4-6
Watercourse G Showing Alluvial Fan Characteristics

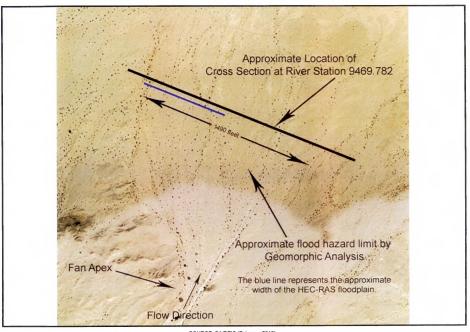
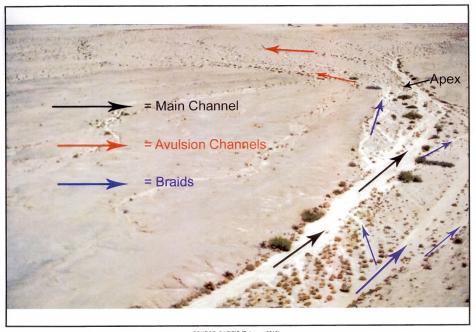




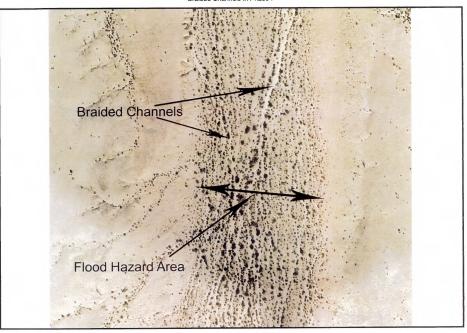
FIGURE 4-7
Watercourse G Alluvial Fan Oblique View



SOURCE: SA/DEIS (February 2010).

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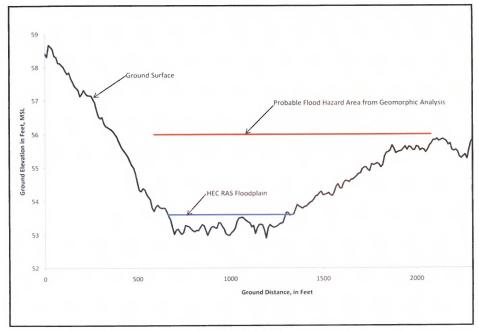
FIGURE 4-8
Braided Channels in Phase I



SOURCE: SA/DEIS (February 2010).

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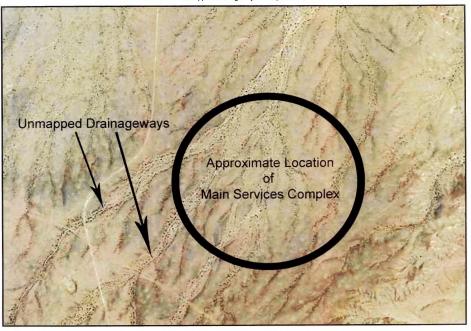
FIGURE 4-9 HEC-RAS Cross Section 9469 G



SOURCE: SA/DEIS (February 2010).

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FIGURE 4-10
Unmapped Drainageways Example



SOURCE: SA/DEIS (February 2010).

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FIGURE 4-11
Unmapped Drainageway Near the Main Services Complex



SOURCE: SA/DEIS (February 2010).



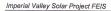
Appendix A - Figures

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FIGURE 4-12
Floodplain Vegetation in Phase I



SOURCE: SA/DEIS (February 2010).



Appendix A - Figures

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# Appendix B Determination of NEPA Adequacy (DNA)

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### **Appendix B**

#### Worksheet

# Determination of NEPA Adequacy (DNA) U.S. Department of the Interior

Bureau of Land Management

OFFICE: El Centro Field Office (CA-670)

TRACKING NUMBER: 2010-121

CASE FILE/PROJECT NUMBER: CACA-47740

PROPOSED ACTION TITLE/TYPE: The proposed action is an amendment to the California Desert Conservation Area Plan (CDCA Plan) to allow the Imperial Valley Solar (IVS) project on the designated site and approval of a right-of-way (ROW) grant for the land area identified as the project site.

The IVS project was originally named and referred to as the Solar Two project. The name was changed to the IVS project by the project applicant after the publication of the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) in February 2010.

LOCATION/LEGAL DESCRIPTION: The IVS project is a privately proposed solar power farm that would be located on approximately 6,500 acres (ac) of vacant land in southwestern Imperial County, California, south of Evan Hewes Highway and north of Interstate 8 (I-8). The project site includes about 6,140 ac of Federal land managed by the United States Bureau of Land Management (BLM) and approximately 360 ac of privately owned land. The site is about 100 miles (mi) east of San Diego, 14 mi west of El Centro, approximately 4 mi east of Ocotillo Wells, and south of a gypsum processing site known as Plaster City.

APPLICANT (if any): Imperial Valley Solar, LLC

A. Description of the Proposed Action and any applicable mitigation measures

Description of the IVS Project

The project applicant filed an Application for Certification (AFC) with the California Energy Commission (CEC) and an application for a ROW grant with the United States Bureau of Land Management (BLM) for the IVS project on June 30, 2008. The AFC application was deemed adequate CEC on October 8, 2008.

The "Notice of Intent (NOI) to prepare an Environmental Impact Statement/Staff Assessment and Proposed Land Use Plan Amendment for the Proposed SES Solar Two Project, Imperial County, CA" was published by the BLM in the Federal Register on October 17, 2008. The publication of the NOI initiated the 45-day public scoping period for the project. Public information/scoping meetings were conducted jointly by the BLM and CEC on November 24, 2008, and December 18, 2008.

The IVS project would be a primary power generating facility constructed in two phases. Phase I would include the construction and operation of a 300-megawatt (MW) facility and Phase II would include the construction and operation of facilities to generate an additional 450 MW. Power would be generated by up to 30,000 SunCatcher solar dish collectors which would be supported on individual metal pipe or drilled pier foundations. Each SunCatcher would consist of a solar receiver heat exchanger and a closed-cycle, high-efficiency Solar Stirling engine specifically designed to convert solar power to rotary power and then drive an electrical generator to produce electricity. Supporting facilities would include an operation and administration building, a maintenance building, 3 assembly buildings, a substation, a metal canopy cover for a water treatment plant, and storage tanks for fuel and water. Ancillary facilities include an approximately 7.2-mi long water supply pipeline, and an approximately 10.4-mi long electrical transmission line supported on 85 to 100 double-circuit towers. Other improvements would include an on-site septic system, and paved and unpaved roads for site access.

#### Joint Environmental Document

In August 2007, the CEC and the BLM California Desert District (CDD) entered into a Memorandum of Understanding (MOU) to jointly develop the environmental analysis documentation for solar thermal projects which are under the jurisdiction of both agencies. The purpose of the MOU is to avoid duplication of staff efforts, share staff expertise and information, promote intergovernmental coordination, and facilitate public review.

A joint SA/DEIS was prepared for the IVS project to comply with the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), respectively. The SA/DEIS was circulated for agency and public review and comment between February 12, 2010 and May 28, 2010.

#### Final Environmental Impact Statement

The BLM prepared the Final Environmental Impact Statement (FEIS) for the IVS project. The comments received on the DEIS are addressed in the FEIS. After the publication of this FEIS, the BLM will prepare and issue a Record of Decision (ROD) regarding the Agency Preferred

Alternative. After issuing the ROD, the BLM must publish a Notice of Availability of the ROD in the Federal Register.

Proposed Action, the Other Build Alternatives, and the No Action Alternatives

The DEIS evaluated the following seven alternatives in detail:

- IVS Project: 750 MW Alternative. This alternative is the proposed action evaluated
  in detail in the SA/DEIS. It would generate 750 MW of electricity using 30,000
  SunCatchers on a total of approximately 6,500 ac of land. As noted earlier, this
  alternative is proposed to be constructed in two phases, with Phase I generating 300
  MW of electricity and Phase II generating an additional 450 MW of electricity.
- 300 MW Alternative: This alternative would generate 300 MW of electricity using 12,000 SunCatchers on approximately 2,600 ac of the total IVS project site. This alternative would generate 40 percent of the MW of the IVS project, on about 40 percent of the site used by the IVS project, with 40 percent of the total SunCatchers as the IVS project. This alternative would be equivalent to Phase I of the IVS project.
- Drainage Avoidance #1 Alternative: This alternative was developed in consultation
  with the United States Army Corps of Engineers (Corps) to avoid certain drainages
  on the IVS project site. This alternative would generate 632 MW of electricity using
  25,000 SunCatchers on approximately 4,690 ac of the total IVS project site. This
  alternative would generate 83 percent of the MW of the IVS project, on
  approximately 72 percent of the site used by the IVS project, with 83 percent of the
  SunCatchers of the IVS project.
- Drainage Avoidance #2 Alternative: This alternative was also developed in
  consultation with the Corps to avoid certain drainages on the IVS project site. This
  alternative would generate 423 MW of electricity using 10,240 SunCatchers on
  approximately 3,153 ac of the IVS project site. This alternative would generate 56
  percent of the MW of the IVS project, on approximately 49 percent of the site, with 42
  percent of the SunCatchers of the IVS project.
- No Action Alternative No ROW Grant and No CDCA Plan Amendment: Under this No Action Alternative, the BLM would not approve the ROW grant application and would not amend the CDCA Plan to allow that solar project on the IVS project site. Because there would be no amendment to the CDCA Plan and no solar project approved for the IVS project site under this No Action Alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or

facilities constructed or operated on the site. However, the site would be available for other uses that are consistent with the CDCA Plan and, in the absence of the IVS project, other renewable energy projects may be constructed in other locations to meet State and Federal mandates.

- Land Use Plan Amendment Alternative: No Action Alternative No ROW Grant and Amend the CDCA Plan for No Solar: Under this Alternative, the BLM would not approve the ROW grant application and would amend the CDCA Plan to make the IVS project site unavailable for future solar development. Because the CDCA Plan would be amended under this alternative to make the IVS project site unavailable for future solar development, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site. However, in the absence of the IVS project, other renewable energy projects may be constructed in other locations to meet State and Federal mandates.
- Land Use Plan Amendment Alternative: No Action Alternative No ROW Grant
  and Amend the CDCA Plan for Other Solar: Under this Alternative, the BLM would
  not approve the ROW grant application and would amend the CDCA Plan to make
  the IVS project site available for future solar development. Because the CDCA Plan
  would be amended under this alternative, it is possible that the site would be
  developed with the same or a different solar technology in the future.

Applicant Proposed Modifications to the Proposed Action and the Other Build Alternatives

After the DEIS was released for public review in February 2010, the applicant proposed the following four modifications/refinements to the IVS project and the other Build Alternatives:

- . Two minor shifts in the transmission line
- Two minor shifts in the water pipeline between the project site and the Seeley Wastewater Treatment Plant (SWWTP)
- Modifications in the onsite hydrogen storage system
- · An alternative water supply for initial construction and operations

These modifications were incorporated in the IVS project, the 300 MW Alternative, Drainage Avoidance #1 Alternative, and Drainage Avoidance #2 Alternative. Because these modifications to the Build Alternatives were not analyzed in the SA/DEIS, the BLM has chosen to use a

Determination of NEPA Adequacy (DNA) as an internal administrative tool to determine whether a supplement to the DEIS is required. The potential requirement to supplement the DEIS is considered in the following sections in this DNA. These proposed modifications are described in detail in Chapter 2, Alternatives Including the Proposed Action, in the FEIS. The analyses supporting this evaluation is provided in Chapter 4, Environmental Consequences, in the FEIS.

#### Agency Preferred Alternative

After the release of the SA/DEIS for public review in February 2010, the BLM and the Corps continued to coordinate and consult regarding possible refinements to avoid specific drainages on the IVS project site. The following modifications to the IVS project, to reduce effects to aquatic resources, the flat tailed homed lizard (FTHL), and cultural resources, were identified in that continued consultation:

- Relocating the Main Services Complex out of some of the primary wash segments of Drainage E
- Removing all SunCatchers within 100 feet of the centerline of Drainage E to provide a 200 ft wide corridor along this drainage through the site

As a result of these modifications to the IVS project, the following specific changes were made to that Alternative, which resulted in a 709 MW Alternative, which has been identified by the BLM as the Agency Preferred Alternative:

- Reduction in the total number of SunCatchers from 30,000 to 28,360 SunCatchers
- Reduction in the amount of energy generated from 750 MW to 709 MW
- Reduction in the acreage used within the approximately 6,500 ac site to avoid drainages and cultural resources on the site
- Other minor reductions or other modifications to the project features to support 709 MW and 28.360 SunCatchers

The modifications to avoid the primary washes in Drainage E that led to the development of the Agency Preferred Alternative differ from the other Build Alternatives as follows:

 IVS Project: The 750 MW IVS project was not designed to avoid impacts to aquatic resources. It was designed for maximum solar energy production on the approximately 6,500 ac site. The IVS project would result in the permanent fill of 177 ac of nonwetland waters of the U.S., 5.2 ac of temporary impacts to waters of the U.S., and indirect effects to 13 ac of waters of the U.S.

- 300 MW Alternative: The 300 MW Alternative would limit the project to the area proposed for Phase I of the 750 MW Alternative. This alternative would result in permanent impacts to 27 ac of waters of the U.S. and 7.3 ac of temporary impacts.
- Drainage Avoidance #1 Alternative: This alternative was designed to avoid the 10 primary washes on the site and would result in 38 ac of permanent impacts to waters of the U.S.
- Drainage Avoidance #2 Alternative: This alternative was designed to eliminate
  impacts to the westernmost and easternmost parts of the project site, resulting in
  permanent impacts to 36.7 ac of waters of the U.S.

The modifications to the IVS project included in the Agency Preferred Alternative have been reviewed by and are acceptable to the applicant.

The Agency Preferred Alternative (709 MW Alternative) is evaluated in Chapter 4 in the FEIS and was determined to be within the range of impacts previously disclosed in the SA/DEIS for the IVS project. As discussed in Chapter 4 of the FEIS, the modifications to avoid the major washes in Drainage E are well within the analysis provided in the DEIS and fall within the range of alternatives examined in the DEIS. The project features in the 709 MW Alternative would be the same as in the IVS project and would be within the same site evaluated in the DEIS. The avoidance of construction in drainages on site in the Agency Preferred Alternative reflects modifications to the project design to specifically reduce certain adverse environmental impacts. As a result, the Agency Preferred Alternative results in fewer environmental impacts, not more, than the IVS project (the original proposed action) evaluated in the DEIS.

As noted above, the 709 MW Alternative was identified by the BLM as the Agency Preferred Alternative in the FEIS. The Agency Preferred Alternative consists of the IVS project, modified as described above to avoid specific washes in Drainage E. This Alternative is referred to as the Agency Preferred Alternative or the 709 MW Alternative throughout the FEIS. It is also noted in the FEIS that the Agency Preferred Alternative is the IVS project with modifications. The analysis of the impacts of the Agency Preferred Alternative is provided in the FEIS following the analysis of the impacts of the IVS project (750 MW Alternative, the original proposed action). The Agency Preferred Alternative is a composite of the originally proposed action with specific design features to avoid or reduce impacts to public land resources that would occur under the IVS project.

The modifications to the IVS project that lead to the development of the Agency Preferred Alternative are not the types of changes in circumstance that would require analysis through supplementation of the DEIS because the minimizing effect of the drainage avoidance features in the Agency Preferred Alternative on the environment are within the scope of the original DEIS analysis. Because the Agency Preferred Alternative (the IVS project with modifications) does not trigger the supplementation provisions of the Council on Environmental Quality (CEQ) NEPA regulations, the Agency Preferred Alternative (the IVS project with modifications) is not further discussed in this DNA. The Agency Preferred Alternative is, as noted above, fully discussed in the FEIS as an alternative to the proposed action (IVS project) and is identified as the BLM Agency Preferred Alternative.

The Agency Preferred Alternative does include the four applicant proposed modifications described earlier that are included in the IVS project, and the other Build Alternatives.

#### B. Land Use Plan (LUP) Conformance

LUP Name\* California Desert Conservation Area Plan Date Approved 1980, as amended

Other Document Western Colorado Desert Routes of Travel Designations
(WECO) (amendment to the CDCA Plan)

Date Approved

 List applicable LUPs (for example, resource management plans; activity, project, management, or program plans; or applicable amendments thereto)

BLM lands in the California Desert District are governed by the CDCA Plan (1980 as amended). The CDCA Plan, while recognizing the potential compatibility of solar generation facilities on public lands, requires that all sites associated with power generation or transmission not specifically identified in the CDCA Plan be considered through the Plan Amendment process.

The IVS project site is currently designated as Multiple-Use Class L (Limited Use) Designation in the CDCA Plan. The Limited Use designation is intended to protect sensitive, natural, scenic, ecological, and cultural resources values. Public lands designated as Limited Use are managed to provide for multiple use of resources at a lower intensity, ensuring that sensitive values are not significantly diminished. The construction and operation of a solar generating project on the IVS project site would require the BLM to amend the CDCA Plan to allow wind/solar energy generating activities in the Multiple Use Class L (Limited Use) on the IVS project site.

Based on Table 1, Multiple Use Class Guidelines, in the CDCA, Electrical Generation Facilities, wind/solar use types are conditionally allowed in the Multiple Use Class L designation contingent on NEPA requirements being met for the proposed use. As noted above, Chapter 3, "Energy Production and Utility Corridors Element" of the CDCA Plan specifically requires that newly proposed power facilities that are not already identified in the Plan be considered through the Plan Amendment process. The IVS project site is not currently identified as a solar site in the Plan and, therefore, a Plan Amendment is required to include the site with solar uses as a recognized element within the Plan.

The WECO amendment to the CDCA Plan identifies 10 Open Routes within the IVS project site and construction laydown site, and 2 Open Routes in the vicinity of the IVS project site and construction laydown site. According to BLM policy, Open Routes on the IVS project site can be realigned or closed through a decision by the BLM Authorized Officer. Any routes outside the boundary of the IVS project site would not need to be modified or redesignated as a result of the IVS project. Closure of Open Routes on the IVS project site would be required for the IVS project, the Agency Preferred Alternative, and the other Build Alternatives

Under Federal law, the BLM is responsible for processing requests for ROW grant applications to authorize proposed projects such as renewable energy projects, transmission lines, and other appurtenant facilities on land it manages. Because the IVS project is a privately initiated venture that would be sited on lands managed by the BLM, the project applicant has applied for a ROW grant from BLM pursuant to United States Department of Interior regulations. If the ROW grant is approved by BLM, it will have conditions based on the FEIS, the ROD, and other Federal rules and regulations applicable to Federal lands. The applicant would then be able to construct and operate the proposed IVS project on the project site.

If the CDCA Plan amendment and the ROW grant application are approved by the BLM, the IVS project and the project site would be authorized in accordance with Title V of the Federal Land and Management Policy Act (FLMPA of 1976) and 43 Code of Federal Regulations (CFR) Part 2800.

The proposed action (the IVS project) is in conformance with the applicable LUP because it is specifically provided for in the following LUP decisions:

The IVS project, the Agency Preferred Alternative, and the other Build Alternatives would generally conform to the CDCA Plan through the prescribed NEPA compliance, the CDCA Plan amendment process, and the ROW grant application process. The CDCA Plan recognized the potential for future renewable energy development in the California Desert District. The CDCA Plan requires that site specific location identification occur for solar energy uses through the Plan amendment process. All the Build Alternatives would require a Plan amendment to locate the project in the CDCA Plan Area in the California Desert District.

C. Identify applicable National Environmental Policy Act (NEPA) documents and other related documents that cover the proposed action.

List by name and date all applicable NEPA documents that cover the proposed action.

- Staff Assessment/Draft Environmental Impact Statement and Draft California Desert Conservation Area Plan Amendment SES Solar Two Project, Application for Certification (08-AFC-5), CEC and BLM (February 2010).
- Supplement to the Imperial Valley Solar (formerly Solar Two) Application for Certification (08-AFC-5), URS May 2010.

List by name and date other documentation relevant to the proposed action (e.g., biological assessment, biological opinion, watershed assessment, allotment evaluation, and monitoring report).

None

#### D. NEPA Adequacy Criteria

1. Is the new proposed action a feature of, or essentially similar to, an alternative analyzed in the existing NEPA document(s)? Is the project within the same analysis area, or if the project location is different, are the geographic and resource conditions sufficiently similar to those analyzed in the existing NEPA document(s)? If there are differences, can you explain why they are not substantial?

YES. As noted above, the four applicant-proposed modifications would apply to the IVS project, the 300 MW Alternative, Drainage Avoidance #1 Alternative, Drainage Avoidance #2 Alternative, and the Agency Preferred Alternative; these are referred to collectively as "all the Build Alternatives" in this DNA. The modifications would affect the alignments of the

transmission and water lines, and would change the onsite hydrogen storage and the water supply for construction and initial operation. These modifications do not materially change or modify the project, its location, or the geographic and resources conditions analyzed in the DEIS. The modifications and their consistency with all the Build Alternatives are described below. As noted above, the analysis of the potential effects of these modifications is provided in Chapter 4 in the FEIS.

#### Transmission Line Alignment Modifications

- (1) The transmission line alignment modifications are essentially similar to the transmission line alignment analyzed in the DEIS.
- (2) The transmission line alignment modifications are in the same analysis area, and the geographic and resource conditions are sufficiently similar to those analyzed in the DEIS for the original transmission line alignment.
- (3) The differences between the modified transmission line alignment and the transmission line alignment analyzed in the DEIS are not substantial.

As noted above, the modifications to the transmission line alignment originally analyzed in the DEIS include shifting two segments of that transmission line. The western transmission line alignment modification would occur over a 750 foot (ft) long span which would be shifted approximately 120 ft southeast of the original alignment. The second segment modification (north of the Imperial Valley San Diego Gas & Electric [SDG&E] Substation) would occur over a 1,025 ft long span which would be shifted approximately 300 ft east of the original alignment.

The transmission line modifications in all the Build Alternatives would function the same way as the transmission line evaluated in the DEIS. The minor alignment shifts would not materially change the overall alignment of this transmission line, the location of the line, or the analysis area, and would not result in geographic or resource conditions not analyzed for this transmission line in the DEIS. Specifically, the proposed modifications in the transmission line alignment results in an alignment essentially similar to the transmission line analyzed in the DEIS. Based on the modifications described above, the geographic environment of the transmission line realignments is the same as for the transmission line evaluated in the DEIS. In addition, resource conditions are similar for the area where the modifications would take place.

The transmission line realignments would be incorporated with the other project design features of the IVS project, the Agency Preferred Alternative, and the other Build Alternatives as described in the DEIS. Given that the overall design of the Build Alternatives with the modified transmission line is essentially the same as the IVS project evaluated in the DEIS, it is still

expected that the environmental consequences associated with the proposed transmission line alignment modifications would be similar to those identified in the DEIS for the IVS project. The proposed transmission line realignments would also be subject to any applicable mitigation measures identified in the DEIS.

#### Waterline Alignment Modifications

- (1) The waterline alignment modifications are essentially similar to the waterline alignment analyzed in the DEIS.
- (2) The waterline alignment modifications are in the same analysis area, and the geographic and resource conditions are sufficiently similar to those analyzed in the DEIS for the waterline alignment.
- (3) The differences between the waterline alignment modifications and the waterline alignment analysis in the DEIS are not substantial.

For all the Build Alternatives, the waterline alignment was modified slightly to follow the Evan Hewes Highway ROW where feasible to avoid sensitive resources including as many known cultural resources as possible as described in the analyses in Chapter 4 in the FEIS. By locating the waterline closing to the Evan Hewes Highway ROW, a greater amount of the waterline alignment would be placed in already disturbed areas, avoiding areas that may be more sensitive for biological and cultural resources. In addition, the geographic environment of the proposed waterline alignment is similar to that described in the DEIS.

The realignments of the water pipeline are relatively minor and the results of the biological resources analysis discussed in Chapter 4 of the FEIS are that no adverse effects to biological resources are anticipated to occur as a result of those realignments. There were no substantive differences in the resources observed on realigned segments of the pipeline compared to the original alignment of the water pipeline analyzed in the DEIS. In addition, as a result of realigning the water line along Evan Hewes Highway, seven known cultural resources are avoided.

Given that the overall design and function of the realigned waterline for all the Build Alternatives are essentially the same as what was evaluated for the waterline in the DEIS, it is expected that the environmental consequences associated with the proposed waterline alignment modifications would be similar to those identified for the waterline in the DEIS. The proposed waterline alignment modifications would also be subject to any applicable mitigation measures identified in the DEIS.

#### Hydrogen Storage Modifications

- (1) The hydrogen storage modification is essentially similar to that analyzed in the DEIS.
- (2) The hydrogen storage modification is in the same analysis area, and the geographic and resource conditions are sufficiently similar to those analyzed in the DEIS.
- (3) The differences between the hydrogen storage modification and the hydrogen storage analysis in the DEIS are not substantial.

As described in the DEIS, an onsite centralized hydrogen gas supply, storage, and distribution system was proposed and evaluated. Modifications proposed to this system for all the Build Alternatives would require the amount of hydrogen stored for each SunCatcher to be increased from 3.4 to 11 standard cubic feet (scf). To support this increase in hydrogen storage for each SunCatcher, the high pressure supply tanks and low pressure dump tanks at each compressor group would accommodate 29,333 scf and 9,900 scf, respectively. In addition, each of the 30 high pressure tanks that supply hydrogen to the power conversion units within a group of 12 SunCatchers under the current design will have a capacity of 489 scf.

The DEIS analyzed the use of a distributed hydrogen system for the IVS project. That analysis provided a worst case scenario release of all the hydrogen on site at the same time. It was assumed that a hydrogen release would form a vapor cloud and detonate causing an unconfined vapor cloud explosion. The distance to an over pressure of 1.0 pounds per square inch (psi) was then determined. This is an overpressure that could cause some damage to structures and injury to exposed members of the general population. The maximum distance to this level of impact was estimated to be 0.13 mi. There are no public receptors at this distance and in general such overpressures would be confined to the project site depending on the location of the cloud at detonation.

With the increase of hydrogen that would be required under the proposed modification, the impacts from a hydrogen release would be slightly greater in magnitude. However, results from the additional modeling demonstrated that an accidental release of hydrogen, under conservation worst-case scenario conditions, will not impact the public or environmental receptors in the vicinity of the project site. The impact distance from the point of release from each of the scenarios analyzed is estimated to range from 0.04 to 0.3 mi.

Given that the overall function of the modified onsite hydrogen system under all the Build Alternatives is essentially the same as that analyzed in the DEIS for the IVS project, it is expected that the environmental consequences associated with the proposed hydrogen storage modifications would be similar to those analyzed in the DEIS. The mitigation measures in the DEIS related to the onsite hydrogen under the IVS project would also apply to the hydrogen storage system modifications under all the Build Alternatives. That mitigation includes the preparation of a Safety Management Plan, a Hazardous Materials Business Plan, and site security plans for project construction and operation. Additional measures related to hydrogen storage, specifically a Risk Management Potential Plan for hydrogen and a Risk Management Plan for hydrogen storage, would also apply to these modifications under all the Build Alternatives. The addition of these measures does not change the function of the use of hydrogen under all the Build Alternatives, but does provide a mechanism for ensuring that the use and storage of hydrogen are adequately covered per Federal and State requirements. As such, the hydrogen storage modifications under all the Build Alternatives do not result in changes related to hydrogen use and storage as evaluated in the DEIS.

#### Alternative Water Supply Modifications

- (1) The alternative water supply modification is essentially similar to that analyzed in the DEIS.
- (2) The alternative water supply modification is in the same analysis area, and the geographic and resource conditions are sufficiently similar to those analyzed in the DEIS.
- (3) The differences between the alternative water supply modification and the water supply analysis in the DEIS are not substantial.

The DEIS indicated that water would be needed during construction and for washing the SunCatcher mirrors. The DEIS anticipated that the water for mirror washing and dust control would be treated wastewater from the SWWTP delivered via the water pipeline described above and that potable water would be trucked to the site by a yet to be determined local water supplier. Measures in the DEIS were intended to ensure an adequate water supply is available and the provision of water to the project site would not create adverse water quality or supply impacts.

As noted, the applicant is proposing an alternative water source for the initial construction and operation period. Although SWWTP would be able to supply water for all the Build Alternatives in the long term, the construction of SWWTP improvements needed to treat the water prior to distribution to the IVS project site may not be completed by the time the IVS project construction is initiated. In the event that SWWTP improvements have not been completed at the start of construction of the IVS project, the applicant proposes to use a temporary, alternative water supply for all the Build Alternatives until SWWTP water is available.

This alternative water supply would be provided through the Dan Boyer Water Company in Ocotillo. That water source is potable and permitted for use by construction or personal consumption. It is expected that the all the Build Alternatives would require this temporary water supply for between 6 months and 3 years. Sections 4.2, Air Quality, and 4.16, Traffic and Transportation, describe how the water would be transported to the site and evaluates the potential air quality and traffic impacts of the alternative water supply is summarized below in response to Question 3.

Water would be transported from the well to the IVS project site in 7,000 gallon (gal) water trucks. It is anticipated that up to 13 truck trips per day would be required during construction and up to 7 truck trips per day would be required during operation until SWWTP becomes available.

This water would be pumped from State Well No. 16S.9E-36G4 which is approximately 3.5 mi southwest of the western boundary of the IVS project site, immediately south of the County Road S22 exit (Exit 89) on I-8. The extraction of water from this well is permitted for construction uses and personal consumption at a rate of 40 acre-feet per year (afy) or approximately 41,775 gallons per day (gal/day). The well is 10.75 inches (in) in diameter, 560 ft deep and is screened from 340 to 560 ft below ground surface (bgs). Historically, water has been extracted from this well at amounts up to nearly 200 afy, with amounts typically between 120 and 132 afy. That water was sold for a variety of uses including construction, dust control, quarry operations, and personal use. The well owner has provided a written will serve letter (March 26, 2010) to the applicant, indicating its ability to provide the needed water to the IVS project. It should be noted that the well owner could apply for an amendment to the existing condition use permit (under which 40 afy can be extracted) to a higher amount based on competent proof that the well had an historic use greater than 40 afy within a period of one year.

The well is in the Ocotillo/Coyote Wells Groundwater Basin (OCWGB) and is considered to be part of the Ocotillo/Coyote Wells sole source aquifer. The IVS project is in compliance with the Sole Source Aquifer program because it would not result in activities that would contaminate the aquifer. In addition, the project construction footprint is entirely outside the designated recharge zone of the aquifer and would not introduce contaminants into the aquifer.

State Well No. 16S.9 E-36G4 operates under an existing Conditional Use Permit and is permitted for the extraction of water. Water from this well would be delivered to a point inside the OCWGB and used for a project that lies primarily over that basin, so that no water export permit would be required. In addition, the use of this well water would only continue until the treated water is available from the SWWTP. Because this modification in temporary water supply would require a similar amount of water as that identified in the DEIS and would be

consistent with the permit for that well, the proposed modification for this alternative water source for the IVS project, the Agency Preferred Alternative and the other Build Alternatives is similar to alternatives analyzed in the DEIS in the need for and estimated amounts of water for construction and operations.

Is the range of alternatives analyzed in the existing NEPA document(s) appropriate with respect to the new proposed action, given current environmental concerns, interests, and resource values?

YES. The four applicant-proposed modifications for all the Build Alternatives are within the range of alternatives evaluated in the DEIS as explained below for each of the modifications.

Transmission Line Alignment Modifications. The 2 minor shifts in the transmission line alignment do not substantially alter the project location and do not change the operation or physical parameters of the transmission line analyzed in the DEIS. The resource values evaluated in the DEIS for the project have not changed, nor have any adverse impacts been identified as a result of the proposed transmission line alignment modifications. Therefore, the modifications of the transmission line alignment for all the Build Alternatives have no effect on the range of alternatives discussed in the DEIS, and no additional alternatives are warranted as a result of this modification.

Waterline Alignment Modifications. The proposed waterline alignment modifications do not substantially after the project location and do not change the operation or physical parameters of the waterline previously analyzed in the DEIS. The resource values evaluated in the DEIS for the project have not changed, nor have any adverse impacts been identified as a result of the proposed waterline alignment modification. The waterline realignments result in the avoidance of seven known cultural resources. As discussed in Chapter 4 in the FEIS, no new additional cultural resources were observed in the areas of the realignments during the cultural resources surveys in those areas. The biological surveys did not identify any special interest plants or detect any FTHL in the areas for the water line realignments. Therefore, the modifications associated with the waterline alignment have no effect on the range of alternatives discussed in the DEIS, and no additional alternatives are warranted as a result of this modification.

Hydrogen Storage Modifications. The range of alternatives analyzed in the DEIS is still appropriate with respect to the modifications of hydrogen storage on the project site. Because the DEIS identified impacts associated with on site hydrogen storage (potential for release of hydrogen on site), the modification in hydrogen storage on site does not after the project. The modifications in hydrogen storage would result in the implementation of additional protective measures mandated by Federal and State regulations. Therefore, the proposed hydrogen storage modifications under all the Build Alternatives would have no effect on the range of

alternatives discussed in the DEIS, and no additional alternatives are warranted as a result of this modification

Alternative Water Supply Modifications. The range of alternatives analyzed in the DEIS is still appropriate with respect to the proposed temporary water supply for the project site because the DEIS identified the need for water during construction and operation, and the alternative water supply would meet that defined need without modifying the project. The project site will not change; the only change is that well water from a well approximately 3.5 mi from the site will be trucked to the site in the short term. As discussed in Chapter 4 in the FEIS, because traffic volumes are relatively low on streets in this area, and mitigation to address damage to street surfaces caused by project related truck traffic is already included in the Build Alternatives, the alternative water supply is within the range of the alternatives, impacts and mitigation considered in the DEIS. No additional alternatives are warranted as a result of this modification.

3. Is the existing analysis valid in light of any new information or circumstances? Can you reasonably conclude that new information and new circumstances would not substantially change the analysis of the new preferred alternative?

YES. The existing analyses and conclusions in the DEIS are valid as of July 2010. There is no new information and no new guidance that would trigger the need for additional analyses of the proposed modifications as discussed in the following sections.

Transmission Line Alignment Modifications. The transmission line realignments are in areas previously surveyed for biological and cultural resources. Given that the overall design of all the Build Alternatives with the transmission line realignments is essentially the same as evaluated in the DEIS, it is expected that the environmental consequences of the transmission line realignments would be similar to the impacts of the transmission line identified in the DEIS. There is no new information or circumstances that would substantially changed the analysis of the transmission line realignments compared to the analysis in the DEIS, as discussed in Chapter 4 in the FEIS

Waterline Alignment Modifications. The waterline realignments are not in areas previously surveyed for biological resources. As discussed in Chapter 4 in the FEIS, early spring botanical surveys were conducted in April 2010. Those surveys did not detect any special status plant species within the modified waterline alignment. In addition, as a result of realigning the water line along Evan Hewes Highway, seven known cultural resources are avoided. Given that the overall design of all the Build Alternatives with the waterline realignments is essentially the same as evaluated in the DEIS, it is expected that the environmental consequences of the waterline realignments would be similar to the impacts of the waterline identified in the DEIS related to biological resources and less than the impacts of the waterline identified in the DEIS

for cultural resources as discussed in Chapter 4 in the FEIS. As a result, there is no new information or circumstances that would substantially changed the analysis of the waterline line realignments compared to the analysis in the DEIS.

Hydrogen Storage Modifications. Although the modifications associated with hydrogen storage would increase the amount of hydrogen that could be store on site for all the Build Alternatives, the analysis conducted for this increase indicates that no new adverse impacts would occur. As discussed in Chapter 4 in the FEIS, the existing analysis and conclusions in the DEIS remain adequate and there is no new information or circumstances that would change that conclusion

Alternative Water Supply Modifications. Detailed discussion of the potential air quality and traffic effects of the alternative water source are presented in Sections 4.2 and 4.16, respectively, in the FEIS. Those analyses conclude that the alternative water source would not result in air quality or traffic effects substantially different or greater than those for the conditions evaluated in the DEIS. Although the modifications associated with the alternative water supply would result in additional trips and air quality emissions, the analysis conducted for this modification determined that that no new adverse impacts would occur as a result of this modification. Therefore, based on this information, the existing analyses and conclusions remain adequate and there is no new information or circumstances that would change that conclusion.

4. Are the direct, indirect, and cumulative effects that would result from implementation of the new agency preferred alternative similar (both quantitatively and qualitatively) to those analyzed in the existing NEPA document?

YES. The direct, indirect and cumulative effects of all the Build Alternatives with the proposed modifications are similar to those analyzed in the DEIS.

Transmission Line Alignment Modifications. As discussed in Chapter 4 in the FEIS, the affected environment and environmental consequences associated with the minor realignments of the transmission line would remain unchanged for air quality under all the Build Alternatives. The transmission line realignments under all the Build Alternatives will result in minor changes that do not create additional construction or operation related impacts to geologic hazards, soil resources, water resources, biological resources, land use resources, socioeconomic resources, traffic and transportation, noise, visual resources, waste management, hazardous materials, and public health and safety, beyond those presented in the DEIS.

For paleontological resources, the affected environment would be expanded to include the segments of transmission line realignment that would be outside the areas previously surveyed

for paleontological resources under all the Build Alternatives. Similar to for the IVS project and the overall project site, there is a high potential for fossil remains to be uncovered by excavations during construction of this modification. The measures presented in the DEIS would substantially mitigate the impacts of the transmission line realignments under all the Build Alternatives on paleontological resources.

Waterline Alignment Modifications. As discussed in Chapter 4 in the FEIS, the affected environment and environmental consequences associated with the minor realignments of the waterline would remain unchanged for air quality under all the Build Alternatives. The waterline alignment modifications under all the Build Alternatives will result in minor changes that do not create additional construction or operation related impacts to geologic hazards, soil resources, water resources, land use resources, socioeconomic resources, traffic and transportation, noise, visual resources, waste management, to hazardous materials handling, and public health and safety, beyond those presented in the DEIS.

As discussed in Chapter 4 in the FEIS, for biological resources, the affected environment would change because the realigned waterline under all the Build Alternatives includes approximately 80 ac of land that were not previously surveyed for biological resources. As noted above, early spring botanical surveys conducted in April 2010 surveys did not detect any special status plant species within the modified waterline alignment. Therefore, given that the overall design of all the Build Alternatives is essentially the same as evaluated in the DEIS, it is expected that the environmental consequences of the waterline realignments related to biological resources would be similar to the impacts of the waterline line identified in the DEIS. As a result, there is no new information or circumstances that would substantially changed the analysis of the waterline line realignments compared to the analysis in the DEIS.

Because the waterline will be buried less than 3 ft (approximately 30 in) deep, the paleontological environment will be unchanged as a result of the waterline alignments. Therefore, the waterline realignments under all the Build Alternatives will result in minor changes that do not create additional construction or operation related impacts to paleontological resources beyond those presented in the DEIS.

Hydrogen Storage Modifications. As discussed in Chapter 4 in the FEIS, the affected environment and environmental consequences associated with the minor modifications to the hydrogen storage on site would remain unchanged for air quality under all the Build Alternatives. The hydrogen storage modifications under all the Build Alternatives will result in minor changes that do not create additional construction or operation related impacts to geologic hazards, soil resources, water resources, biological resources, cultural resources, paleontological resources,

land use resources, socioeconomic resources, traffic and transportation, noise, visual resources, waste management, and public health and safety, beyond those presented in DEIS.

For hazardous materials handling, the affected environment would remain the same. However, the environmental consequences may change slightly under all the Build Alternatives due to the increase of hydrogen that could be stored on site. Overall, these changes to the centralized hydrogen system under all the Build Alternatives would result in an increase in the hydrogen stored on site from 1,070 pounds to 28,400 pounds. However, the anticipated effects associated with the storage of the hydrogen on the project site under all the Build Alternatives is essentially the same as what was identified in the DEIS for the IVS project. The anticipated cumulative impacts of the proposed action will also be similar to that analyzed in the DEIS. The proposed hydrogen storage modification under all the Build Alternatives contains similar existing environmental factors and design features; therefore, the anticipated environmental consequences of the modification under all the Build Alternatives are expected to be the same as considered in the DEIS for the IVS project.

Alternative Water Supply Modifications. As discussed in Chapter 4 in the FEIS, the affected environment and environmental consequences associated with the minor modifications to the alternative water supply under all the Build Alternatives would remain unchanged for geologic hazards. The alternative water supply under all the Build Alternatives will result in minor changes that do not create additional construction or operation related impacts to soil resources, biological resources, paleontological resources, cultural resources, land use resources, socioeconomic resources, visual resources, waste management, hazardous material handling, and public health and safety, beyond those presented in DEIS.

The analysis of the potential air quality and traffic impacts of the alternative water source, discussed in detail in Sections 4.2 and 4.16, respectively, in the FEIS is summarized below.

The construction air quality emission sources considered in the DEIS remain unchanged under all the Build Alternatives except that water needed for construction will be delivered to the site in 13 7,000 gal water truck trips each day, with each truck traveling approximately 7 mi one way. The operational emission sources would remain unchanged under all the Build Alternatives except that water will be delivered in 7 7,000 gal water trucks each day to the with each truck traveling approximately 7 mi one way. Peak daily and annual emissions from all construction and operational activities with water delivery via truck were calculated for the Build Alternatives. Given the low volume of trucks that would transport water to the project site from the well, the emissions from those trips under all the Build Alternatives would be very small in comparison with total project-related emissions. The small increase in emissions under all the Build

Alternatives is expected to in a negligible change the impacts already predicted from construction and operations emissions.

The results of aquifer testing conducted in April 2010 demonstrate that State Well No. 16S/9E-36G4 can support the water demands for all the Build Alternatives during construction and the lifespan of operations (if needed). Based on the results of the aquifer test performed for this well, it is anticipated that the pumping of the well at the prescribed rates for all the Build Alternatives will have no significant impact on water levels and water quality in the area, as the zone of influence (ZOI) is considerably less than the distance to the closest well, approximately 500 ft away.

The use of the temporary alternative water supply for all the Build Alternatives is not a substantial change with regard to storm water runoff and flooding hazard considerations. The temporary use of the alternative water supply would not create additional construction or operation related impacts to storm water runoff and flooding hazards beyond those identified in the DEIS. In addition, no additional cumulative impacts to water resources were identified related t the use of State Well No. 16S/9E-36G4 as an alternative water supply. Therefore, the existing NEPA EIS sufficiently analyzes site-specific impacts related to the inclusion of the modifications to the temporary water supply in the IVS project, the Agency Preferred Alternative, and the other Build Alternatives.

## 5. Are the public involvement and interagency review associated with existing NEPA document(s) adequate for the current proposed action?

YES. The public has had numerous opportunities to review and provide written and public comments on the proposed action and alternatives to the proposed action. When the Notice of Availability (NOA) of the FEIS is published in the Federal Register, a 30-day public availability period for the FEIS begins. During this time period, the BLM may receive comments on the FEIS. If the BLM receives any comments on the FEIS, those comments may be addressed in the Record of Decision (ROD) or may result in supplementation of the FEIS.

#### E. Persons/Agencies/BLM Staff Consulted

Name	Title	Resource/Agency Represented
Jim Stobaugh	National Project Manager,	BLM
	Washington Office (350)	
Erin Dreyfuss	Planning & Environmental Coordinator,	BLM
	California State Office	
Erica Niebauer	Assistant Regional Solicitor,	BLM
	Pacific Southwest Region	
Christine Huard-Spencer	Senior Environmental Planner	LSA Associates, Inc.
Jane Dillon	Environmental Planner	LSA Associates, Inc.
Romi Archer	Senior Environmental Planner	LSA Associates, Inc.
Frank Haselton	Principal	LSA Associates, Inc.
Mike Trotta	Principal	LSA Associates, Inc.
Rod McLean	Associate Archaeologist	LSA Associates, Inc.

Note: Refer to the EA/EIS for a complete list of the team members participating in the preparation of the original environmental analysis or planning documents.

Conclusion (If you found that one or more of these criteria is not met, you will not be able to check this box.) [See following page.]

Based on the review documented above in this DNA, I conclude that the change in circumstances described above conform to the applicable land use plan inasmuch as the process to amend the plan remains the same for any of the action alternatives, and that the NEPA DEIS documentation fully covers the change in circumstances described above and as reflected in the BLM identified Agency Preferred Alternative and no supplementation under NEPA is required.

Signature of Project Lead

Signature of NEPA Coordinator

Mayao Z. Hordis
Signature of the Responsible Official:

July 9, 2010

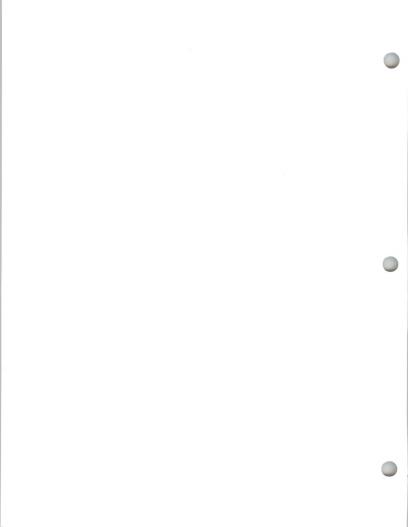
**Note:** The signed Conclusion on this Worksheet is part of an interim step in the BLM's internal decision process and does not constitute an appealable decision.

## Appendix C Scoping Report

This Appendix contains the *Final Scoping Report Stirling Energy Systems Solar Two Project* (Scoping Report; LSA Associates, Inc. September 2009). The Scoping Report is provided on a compact disc in the sleeve following this page of text.

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# Appendix D Public Comments on the Draft Environmental Impact Statement

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#### **D.1 Introduction**

The California Energy Commission (CEC) and the United States Bureau of Land Management (BLM) distributed the joint Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) for the Imperial Valley Solar (IVS) project for public and agency review and comment on February 12, 2010. The comment period ended May 27, 2010.

Section 508, Accessibility of Electronic and Information Technology for People with Disabilities, of the Federal Rehabilitation Act (29 United States Code [USC] 796(d)) requires federal agencies to make their electronic and technology information accessible to people with disabilities. This appendix includes material that was not available to either the BLM or the CEC in a format that offered accessibility features compatible with Section 508 requirements. Specifically, the written comments provided on the SA/DEIS were received as either a printed paper product or a scanned version of a printed paper product, neither of which could be converted to an accessible format that would be consistent with the requirements of Section 508. As a result, Sections D.4, Common Responses, and D.5, Individual Responses, include a graphical interface that inserts pictures of individual written comments within the text pages. Because this graphical interface cannot be made accessible under Section 508, parts of Sections D.4 and D.5 may be unreadable under the requirements of Section 508. For the convenience of readers who wish to read the responses without the graphical interface comments in the text, the responses without those graphical interface comments are provided in Section D.6. Responses Without Graphical Interface Comments.

#### D.2 Format of the Responses to Comments

The comments received on the SA/DEIS are organized by agency, organization, or member of the general public. Each comment letter/email is assigned a unique number. Individual comments/issues within each comment letter/email are numbered individually along the right-hand margins.

This appendix is organized as follows:

- D.1 Introduction
- D.2 Format of the Responses to Comments: This section describes the format and organization of the comments received on the DEIS and the responses to those comments.
- D.3 Index of Comments Received: This section provides a list of the comments
  received on the DEIS, by agency, organization, or member of the general public, lists
  the unique letter/number code for each comment.
- D.4 Common Responses: This section provides consolidated responses for topics
  on which a number of similar and related comments were received. Section D.4
  provides the language of the individual comments, grouped by topic, followed by the
  common responses to the grouped comments. As noted earlier, Section D.4 includes
  those comments as graphical interface inserts that are not accessible to people with
  certain disabilities and thus is not in compliance with Section 508 of the Federal
  Rehabilitation Act (29 USC 796(d)). Refer to Section D.6, Responses Without
  Graphical Interface Comments, for a text-only version of this section.
- D.5 Individual Responses to the Comment Letters/Emails: The section provides
  the language of individual comments followed by responses to individual comments
  not responded to in the common responses provided in Section D.4. As noted
  earlier, Section D.5 includes material which is not readable under the requirements
  of Section 508. Refer to Section D.6, Responses Without Graphical Interface
  Comments, for readable text of this section.
- D.6 Responses Without Graphical Interface Comments: This section contains all the responses to comments received on the SA/DEIS without the graphical interface comments.

#### **D.3 Index of Comments Received**

Table D-1 is an index list of the agencies, groups, and persons who commented on the DEIS during the review and comment period. As described above, each comment was assigned a unique letter/number with each comment individually numbered. For example, F1-2 is the first substantive comment in letter F1. "F" represents a Federal agency, the "1" refers to the first Federal agency letter, and the "2" refers to the second comment in that letter.

Copies of the individual comments are provided in Sections D.4, Common Responses, and D.5, Individual Responses to the Comment Letters/Emails, with the responses following the comments. The full comment letters are provided on a compact disc in the sleeve following the last page of text in this Appendix.

Table D-1 Summary of Comments Received on the Imperial Valley Solar Project
Draft Environmental Impact Statement

Letter	Agency/Person
Comments from	Federal Agencies
F1	United States Department of the Interior National Park Service (May 4, 2010)
F2	United States Environmental Protection Agency (June 14, 2010)
Comments from	Native American Tribal Governments
NA1	Quechan Indian Tribe (May 17, 2010)
NA2	Kwaaymii, Laguna Band of Indians (May 16, 2010)
Comments from	State Agencies
S1	California Department of Transportation (May 27, 2010)
S2	State of California Department of Parks and Recreation (May 28, 2010)
Comments from	Local Agencies
L1	City of El Centro (May 13, 2010)
L2	Imperial County (May 27, 2010)
Comments from	Organizations
01	Public Employees for Environmental Responsibility (PEER)
02	Center for Biological Diversity (CBD)
03	Defenders of Wildlife
04	Natural Resource Defense Council and The Wildemess Society
O5	Anza Trail Coalition of Arizona
O6	Backcountry Against Dumps (June 15, 2010)
07	Basin and Range Watch
O8	Backcountry Against Dumps (May 27, 2010)
09	California Unions for Reliable Energy
O10	California Native Plant Society
011	BLM California Desert District Advisory Council (email April 1, 2010)

Letter	Agency/Person	
Comments from	Public Utilities	
U1	San Diego Gas & Electric (May 14, 2010)	
Comments from	Members of the General Public	
P1	Edie Harmon and Donna Tisdale (email March 2, 2010)	
P2	Anita Nicklen (email May 28, 2010)	
P3	Kim Bauer (email April 17, 2010)	
P4	Glenn Kirby (email April 24, 2010)	
P5	Gregory Gandrud (email May 5, 2010)	
P6	Cody Hanford (email May 13, 2010)	
P7	Brendan Hughes (email May 17, 2010)	
P8	Jamie Shores (email May 26, 2010)	
P9	Patrick Donnelly (email May 26, 2010)	
P10	Denis Trafecanty (no date)	
P11	Edie Harmon (email May 26, 2010)	
P12	Greg P. Smestad, Ph.D. (May 21, 2010)	

#### **D.4 Common Responses**

A number of the comments received on the IVS project and the DEIS discussed the same issues or environmental concerns. Rather than repeat responses over and over again, Common Responses were prepared that address those comments, and the responses to those comments refer the reader to the applicable Common Response.

In addition, some comments raised issues that are not environmental issues within the context of the National Environmental Policy Act (NEPA) or are outside the authority and jurisdiction of the BLM. Consistent with requirements of NEPA, the BLM has only addressed comments that raise substantive environmental issues under NEPA. However, all the comments received on the DEIS are included in this appendix.

The Common Responses are listed briefly below and are provided in full in the following sections:

- Section D.4.1, Non-NEPA/BLM Issues
- · Section D.4.2, Project Alternatives
- Section D.4.3. Purpose and Need
- Section D.4.4, Cumulative Impacts
- Section D.4.5, California Desert Conservation Area Plan
- Section D.4.6, Air Quality
- Section D.4.7, Biological Resources
- Section D4.8, Climate Change
- Section D.4.9, Cultural Resources
- Section D.4.10. Public Health and Safety and Hazardous Materials
- · Section D.4.11, Bonds Required of the Applicant
- · Section D.4.12, Visual Resources
- Section D.4.13, Water Resources

- Section D.4.14. NEPA Process and Issues
- Section D.4 15, CEC Process.
- Section D.4.16, Determination of NEPA Adequacy

Each of those sections lists the unique letter/number code for each comment for which the common response applies.

The following sections contain:

- A list of the comments received on the SA/DEIS related to the topic or environmental parameter noted in the section title (such as air quality or biological resources)
- . The language of each of those comments, from the written comment letters/emails
- . The common response that addresses the issue or issues raised in those comments

#### D.4.1 Non-NEPA/BLM Issues

The following comments do not raise issues under the National Environmental Policy Act (NEPA) or that are outside the authority of the United States Bureau of Land Management (BLM).

Comments: NA1-3, NA1-4, NA2-1, S1-1, S1-6, L1-1, L2-12, U1-1, O1-1, O1-2, O1-3, O1-5, O1-6, O1-7, O1-13, O1-14, O1-15, O1-16, O2-1, O2-21, O2-36, O2-38, O2-40, O2-42, O4-1, O4-2, O4-7, O6-17, O7-1, O9-1, P3-1, P4-1, and P6-1.

The Quechan Tribe's Fort Yuma Reservation at its current site was established in 1884 as a permanent homeland for the Quechan people. The Quechan people and their ancestors have inhabited the area surrounding the confluence of the Colorado and Gila Rivers for centuries. The Quechan Tribe's traditional lands extend well beyond the boundaries of the present day Fort

NA1-3

Yuma Indian Reservation. Traditionally, Quechan settlements, or rancherias, were scattered north and south along the Colorado River from the confluence area, and eastward along the Gila. Traditional lands to the west of the present day reservation were also utilized by the Quechan people. According to Quechan tradition, the northern territory extended to the vicinity of Blythe, California, the southern territory reached to Sonora, Mexico, the western territory extended to California's Cabuilla Mountains, and the eastern territory approached Gila Bend, Arizona. The lower Colorado River tribes, which include the Quechan, shifted up and down the Colorado and Gila rivers, utilizing the banks and floodplain on both sides of the rivers for subsistence and settlements at different historical periods. (Alfonzo Ortiz, Handbook of North American Indians, Volume 10, Southwest (Quechan)) (Smithsonian Institution, Washington D.C. 1982). The traditional use of the area near the proposed project by Native Americans, including the ancestors of the Quechan, is discussed and confirmed in the DEIS' discussion of the cultural and ethnographic history of the project area. DEIS, Cultural Resources, C.2-40 – C.2-45.

NA1-4

The Quechan cultural landscape consists of a myriad of natural and cultural features. Natural features include the Colorado desert and river, mountains, hills, rock outcrops, flora, and fauna. Cultural features include mythology locales, sacred places, settlement and battle site locations, trails, and other resource use areas, along with prehistoric and historic archaeological sites. The latter include rock art (geoglyphs, petroglyphs, and intaglios), trails (stamped paths), trail markers, rock alignments, rock caims, cleared (tamped) circles (sleeping, teaching, prayer, and dance circles), milling areas, pot drops, and other site features. See, e.g., Birnbam, Charles A., Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment, and Management; Technical Preservation Services, National Park Service, Washington D.C. (1994); Russell, John C.; Woods, Clyde M.; and Jackson, Underwood, An Assessment of the Imperial Sand Dunes as a Native American Cultural Landscape, prepared for the California State Office of Bureau of Land Management, Sacramento, California, by EDAW, Inc., San Diego, California (2002). The project will also have impacts on the flat-tailed horned lizard. The lizard is part of the Quechan Tibe's creation story and is of cultural significance to the Tribe.

BLM and CRM companies continue fill my mail box with request for information and or concerns. I am sure you feel the pain as strongly as I, none the less here it is the middle of May and no time to play.

My concerns for the entire Southern California Desert are stated in Enclosure (1), and are provided as an ease to reference. Those concerns have not diminished but instead have deepened in the past years. At this point in time, I am at a loss as to how many ways one can respond to such requests. The basic concern for me is to continue to plead that the Cultural Resources (The Indians History) be preserved and protected. Preserve and Protect Not Impacted would include;

(1) That the fragile surface of desert floor not be impacted.

(2) That the small fragmented remains (to include Muman Remains) that tell the prehistory of the people who knew how to live and move with the rhythm of this environment for thousands of years with out destroying it not be impacted

- (3) That the small animals that live beneath the fragile surface of the desert floor be allowed to continue to live in that environment without being impacted.
- (4) That the intengible view sheds that help to tell the scared legends not be obstructed or impacted
- (5) That well qualified Native American Monitors who can contribute to the record in a meaningful way (not as an archeologist but as an Indian with heritage to the area to ensure that the cultural deposit is identified and interpreted correctly) be employed to participate at the commencement to all Cultural surveys (The very first survey not after the fact)
- (6) That site visits for all interested Indians be provided

In an effort to simplify a complex process, as we discussed in reference (a) | am advising you as the BLM archeologist to provide all who apply for energy or any other type of project with enclosure (2). Always understand that | do not speak for the Indian Community, | can only speak for myself, non the less it is my desire that all people who have a desire to develop this non-replaceable desert landscape be apprised of the pre history of the desert area, hopefully to gain an understanding that we Indians are still here and that we do continue to hold such things and places as very scared. We also understand that once such things are impacted, they can not be renewed, I also desire to believe that such areas are also meaningful to the collective society. We all know that energy can be created and it will continue to be created for future generations. On the other hand, the Landscape as it is today and the l'rehistory can not be created for future generations.

Should you have any questions please feel free to call, thank you.

### CARMEN LUCAS P.O.Box 775

Pine Valley, California 91962 23 March 2007

Vicki L Wood
Field Manager
United States Department of the Interior
Bureau of Land Management
El Centro Field Office
1661 South 4th Street
El Centro, California 92243

Reference: Ocotillo Meteorological (MET) Tower Environmental Assessment
CA-670-2005-95 dated February 2007
End: (1) Photograph Traditional Cultural Property

Dear Ms. Wood

The Affected environment to the Cultural Resources under Section 3.2.6 of the referenced report states, "Traditional Cultural Properties (TCPs) are resources that are important to a community's traditional practices and beliefs and for maintaining the community's cultural identity (Parker and King 998)". The report further states "No cultural resources were observed within the area of potential effects for the MET tower".

Under the Environmental Consequences section of the reference report it states, 
"...most of the cultural resources previously recorded in the area have never been 
evaluated for National Register digibility. Visual impacts on cultural resources can 
occur when there is a change in setting at a resource for which visual setting is one 
element in its National Register digibility.

Please be advised that part of what makes up Traditional Cultural Properties is often the visual and the intangible essence of a place. After having made a site visit to the area of concern, I am compelled to put the following to record:

Ah Kwir (Aakwer) Red Paint Fine dirt taken from the hills somewhere out in the desert. It was used to paint the Indians faces and bodies. (Lora Cline, The Kwaaymii reflections on a lost culture)

#### HUTA-PAH' 1"

... The meanest man, who ever lived, was waiting and watching for his feeble, old father to die. I'le told the people that he wanted to watch until death came so he might see that the body of his beloved father was properly burned and given ceremonial burial. But the people knew what a liar he was, and that he only wanted to be there that he might devour the body of his father.

So Orse (Oso or Naamuul) Bear) said, "No! Nim-me' and Quck and the rest of the people will watch by the side of your sick father. You go off and hunt for something to eat, you are always hungry."

He sulked and whined, but they made him go, and slowly he loped down the trail. Shortly he returned, saying he could not find a thing to eat.

Surmising that he had only been hiding in the bushes waiting for father's death, they sent him away once more. Again he came back with nothing, and repeated this performance till they lost all patience, and finally they said, "Go far, far away and hunt. If you dare return before In'Ya takes his night rest, we shall till you."

This time he really went a long distance, for, with all his sly, crafty ways, he was a big coward and their threats frightened him.

His father died while he was gone, and the people started a fire as quickly as possible, and began burning the body in order that it might be consumed before Huta-pah got back.

Now he was many miles away when the smoke from that funeral pyre rose up through the tall pines, and drifted off on the breeze, but his keen nose scented it, and he turned back at a great rate of speed.

Orse and Quck and Nim-me' and the other people heard him coming, and drew close together in a circle round the fire, guarding the dead body of his father.

Shricking and wailing as he drew near, he cried, "I must see my dear father once more before he is all burned up." But they paid no heed to his cries for they knew what a bad man he was.

Then, in his crafty way, he discovered that there was a low place in the defensive circle where Nimme's stood, for he, you know, is quite a short person; so | Tuta-pah' sneaked back in the brush, made a running jump over Nimme's head and landed by the side of his father's body.

Snatching out the heart from the glowing embers of fire, away he dashed. Across valleys and mountains he ran, and far out on the desert sands.

Finally, he stopped on a hill on the other side, and ate up the heart of his father. As the red drops of blood slowly cozed from his cruel jaws and fell to the ground beneath, the entire hillside assumed a ruddy hue. And to this day, the earth there retains the color of the blood, which dripped from the heart of Huta-pair's father.

It The above legend was related to Mary E. Johnson by Maris Alto of Laguna Band of Indians of Laguna Mountain, about 1914. Tom Lucas, son of Maria Alto, told his daughter Carmen Lucas this legend pointing to Cogote Mountain, Ocotillo, explaining that this is where Huta-pah carried his fathers' heart. To this day one can see the red sprinkled throughout the earth of this sacred mountain.

At this time, I am left to wonder is it by design or is it collective stupidity with which we as a society continue to nilble away at the places that stimulates creative thought to instead create "poor white trash" environments? The creation of Wind Towers at Coyote Mountain, the Geothermal plants at Truckheaven, the SDG&F\_proposed 130-mile transmission line, and of course the All American Pipe line that proposes to stop the water leakage that supports one environment to instead supply an additional 120,000 San Diego Homes with water. Collectively, I can see where this type of progress creates a whole lot of ugliness and does nothing to provide the stimulus one needs to develop ones sense of wonder or helps to keep ones spirit healthy let alone retain any of those special places that one goes to to experience the sense of discovery, or to visit their creator and to hear the legends of the ancestors.

It should be understood that part of what makes up the secred can and most often is the visual quality, and the quietness that is often part of that visual quality of place. It is my opinion, that the visual impact of the Wind Hunter Ocotilo Met Tower will have a destructive adverse effect on this important Intangible Culture Resource. Further it is also the undersigns opinion that Traditional Culture Landscape, the visual quality and the essence of those properties cannot be mitigated and the public is better served if such places are left alone and preserved for future generations.

The enclosed photograph depicts an interesting image of a medicine wheel in the foreground and Coyote Mountain in the background a Traditional Cultural Landscape, a Visual Resource.

Thank you for the opportunity to comment. Should you have any questions please feel free to contract me.

Sincerely

Kwaaymii, Laguna Band of Indians Laguna Mountain, California NA2-1

Copy to:

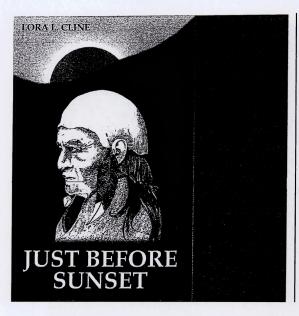
Larry Myers, Native American Heritage Commission

Paul Cuero Jr., Chairperson Campo Band of Indians

Leroy J. Elliot, Chairperson Manzanita Band of Indians

Courtney Ann Coyle, Attorney at Law





Ah Kwir [Agkwer]-Red Paint

Ah Kwir is the name of a war paint which was made from very fine dirt taken from a hill somewhere out on the desert.\* It it was of great value when the warriors painted their faces and bodies with the insignia of their tribe. The desert Indians were accustomed to bring it with other desert products up to the mountains to barter in tacke with the tribes living there.

One of the numerous "Coyote stories" of the Indians living on the Cuyamacas gives their version of how this famous Ah Kwir came into existence.

Tuta-pah' (Coyote) the meanest man who ever lived, was Lwaiting and watching for his feeble, old father to die. He told the people that he wanted to watch until death came so he might see that the body of his beloved father was properly burned and given exemonfal burial. But the people knew what a liar he was, and that he only wanted to be there that he might devour the body of his father.

So Orse [Oso or Naamuul] (Bear) said, "No! Nim-me' and Quck and the rest of the people will watch by the side of your sick father. You go off and hunt for something to eat, you are always hungry."

He sulked and whined, but they made him go, and slowly he loped down the trail. Shortly he returned, saying he could not find a thing to eta. Surnising he that jiel, had only been hiding in the bushes waiting his father's death, they sent him away once more. Again he came back with nothing, and repeated this performance till they lost all battence, and finally

"Notis: In 1980, a large deposit of two noade was found during a survey of the western Imperal Volley desert. It is located at the eastern foot of the Cyovie Mountains near the Mosions horder. This deposit is only a stend's throw of the major seal-west corridor which linked the mountain Inclina to their desert counterperts. Maria Alto had told Tom of an area in the deserve where "abstro-" came from, but I have had never been them. To date, this is the only deposit of iron voide known in the area, and because of prehistrice attitudes touch association with the alte, as well as it location along the main mountain-desert rath, it would seem probable that the deposit was used by prehistoric peoples. they said, "Go far, far away and hunt. If you dare return before In'ya takes his night rest, we shall kill you."

This time he really went a long distance, for, with all his

sly, crafty ways, he was a big coward and their threats frightened him.

His father died while he was gone, and the people started

a fire as quickly as possible, and began burning the body in order that it might be consumed before Huta-pah' got back.

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Orse and Quck and Nim-me' and the other people heard him coming, and drew close together in a circle round the fire, guarding the dead body of his father.

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Then, in his crafty way, he discovered that there was a low place in the defensive circle where Nim-me' stood, for he, you know, is quite a short person; so Huta-pah' sneaked back in the brush, made a running jump over Nim-me's head and landed by the side of his father's body.

Snatching out the heart from the glowing embers of fire, away he dashed. Across valleys and mountains he ran, and far out on the desert sands.

Finally, he stopped on a hill on the other side, and ate up the heart of his father. As the red drops of blood slowly oozed from his cruel laws and fell to the ground beneath, the entire hillside assumed a ruddy hue. And to this day, the earth there retains the color of the blood which dripped from the heart of Huta-pah's father.

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located on Interstate 8 (I-8). Caltrans has the following comments:

The California Department of Transportation (Caltrans) received a copy of Draft Environmental Impact Statement (Draft EIS) for the proposed SES Solar Two / Imperial Valley Solar project

Additional information regarding encroachment permits may be obtained by contacting the Caltrans Permits Office at (619) 688-6158. Early coordination with Caltrans is strongly advised for all encroachment permits.

S1-6

L1-1

If you have any questions on the comments Caltrans has provided, please contact Leila Ibrahim of the Development Review Branch at (619) 688-6954.

#### Dear Chairwoman Douglas and Honorable Commissioners.

The County of Imperial has been identified as one of the best resources for renewable energy within the United States. The El Centro City Council has proactively supported the development of clean energy solutions throughout Imperial County.

JO. MARRAMAN

The potential for solar energy resources in Imperial County could be a significant benefit to the electricity needs for all Californians with estimates exceeding 7,000 megawatts of solar capacity.

In addition to the extensive benefits to the environment from clean renewable energy, the development of this industry would be a significant economic benefit to the City of El Centro and the Imperial Valley. Green jobs in the clean energy industry would provide needed quality employment for the residents of El Centro. currently suffering from high unemployment.

Tessera Solar is processing approvals for a 750-megawatt solar generating facility to be located west of El Centro in the Imperial Valley utilizing the Stirling Energy Systems SunCatcher technology. The SunCatcher is the most efficient solar process in the world and uses very little water—a precious commodity in our county. The Tessera Solar Imperial Valley Solar Plant will be advantageous to the environment by emitting no harmful greenhouse gasses.

#### Office of the City Manager

1275 Main Street, El Centro, CA 92243 (760) 337-4540 Fax (760) 352-6177

Furthermore, the Imperial Valley Solar Project will generate hundreds of construction and permanent jobs, as well as contribute millions of dollar of revenue into the local economy.

L1-1

Therefore, the El Centro City Council encourages the California Energy Commission to approve the Tessera Solar Imperial Valley Solar Plant in a timely manner. Thank you.

11) There has been a discussion of merging of private lands and ownership issues in the past. If there are to be any mergers deemed necessary, the CEC and BLM indicated that this would be handled "after" the CEC and AFC approval is complete. When this occurs, the County can assist in the Lot Merger process for any parcels that need to be merged when IVSP has completed the CEC and BLM approval process for the SSA/FEIS.

L2-12

I am writing in support of the Imperial Valley Solar, LLC project (IVS) currently under review by the California Energy Commission (Commission) and the Bureau of Land Management (BLM). This very important project was initially selected by SDG&E in response to our 2004 Request for Offers for Eligible Renewable Resources and a Purchase Power Agreement (PPA) was executed in 2005. A contract amendment was executed in March and filed for approval at the CPUC to reflect the project's revised schedule and current market conditions.

Approval by the Commission and BLM is critical to SDG&E's efforts to achieve its RPS objectives, including the goal of achieving an RPS portfolio of 33% by 2020. The IVS project represents one of the largest components of SDG&E's renewable portfolio to date. The project complies with California's RPS program requirements and meets the portfolio needs outlined by SDG&E's 2009 RPS Plan. The IVS project will generate clean, renewable energy with zero fuel costs (and therefore contributing zero incremental need for foreign fuel imports) and zero greenhouse gas emissions directly associated with energy production into the atmosphere.

U1-1

Our PPA for this project also demonstrates our strong commitment to renewable energy development in the Imperial Valley. Tessera Solar, the developer of the project, anticipates that IVS will create over 700 local jobs during the construction of the facility and approximately 160 long-term jobs to operate and maintain the facility. Tessera Solar has brought in an experienced senior management team and enthusiastic investors to help bring this project to fruition, and the project has significant local support. As a company fully engaged in bringing reliable, renewable energy to San Diego, we firmly believe the Tessera Solar team will bring this project online quickly and begin providing clean renewable solar power to our customers next year.

Your approval of the IVS project consistent with the existing schedule is crucial to the economics of the project, because IVS has applied for American Recovery and Reinvestment Act (ARRA) Renewable Energy Grants from the U.S. Treasury. These grants are an integral component in the cost structure of the project and require that they break ground before the end of 2010. Timely completion of the permitting process by the Commission and BLM is needed to allow qualification of this project to receive these very important economic stimulus grants.

U1-1

In view of local economic benefits, overall environmental benefits, and the critical role that IVS will play in meeting SDG&E's renewable energy goals, I urge your timely approval of the project following the upcoming evidentiary hearings.

Thank you for your efforts and those of your staff to keep this important renewable project on track.

Following are the comments of Public Employees for Environmental Responsibility (PEER) on the subject SA/DEIS. PEER's summary opinion is that accelerating approval of so massive a project that uses a technology with no commercial track record is not appropriate. Any consideration of this project, and its companion proposal, should be abandoned or placed on hold until practical tests of the efficacy and impacts of the technology on the environment are made on a reasonable scale.	01-1
Authority and goals. Section 211 of the EPAct indicates only that the Secretary of the Interior seek to have approved a minimum of 10,000 MW of renewable energy generating capacity on public lands by 2015. This only grants an authority not a mandate to approve projects to achieve such capacity; it does not specify any particular type of renewable energy. If it is technically infeasible to meet the target date, or alternatives other than use of public lands provide greater benefits to the public, there is no requirement in EPAct to create the generating capacity on public lands. The term "capacity" is carelessly used throughout the document as is "nominal" production, neither clearly specified as to meaning. Both should be clearly defined and consistently used.	01-2
The CPUC, CEC, and EAP <u>pledge</u> of meeting an accelerated goal of 20% sales of renewable energy by 2010 is just that—a pledge, not a mandate or a requirement as stated. How to meet the pledge, if it is practical, is the central question. The same holds for the EO S-14-08 <u>goal</u> of 33% renewable energy sales by 2020—it is a goal, not a mandate.	
Objectives, Purpose and Need. CEQA requires a statement of objectives, to include the underlying purpose of the project (Section 15126.6(a)), and NEPA requires the Federal	O1-3
authority (BLM) to provide a statement of the underlying purpose and need to which the agency is responding in proposing alternatives (40 CFR §1502.13)	01-3
The BLM Purpose and Need statement is frivolous and wrong. Response to an application is not an "underlying purpose" of the project and demonstrates no "need" other than the applicant's need for a project approval—this relates only to paper work. EPAct does not require approval of at least 10,000 MW of renewable energy on public lands by 2015, as indicated in the comments on Authority and Goals above.	
The DOE Purpose and Need statement assumes that the proposed project will avoid, or reduce air pollutants, including greenhouse gases, and employ a new or significantly	01-5

The USACE Purpose and Need statement addresses the substance of the CEQA and NEPA requirements for this statement, unlike the above agency statements.

improved technology compared to technologies in current service, none of which are demonstrated. Moreover, EPAct does not provide a <u>mandate</u> for DOE to select this, or any, project, as indicated in the above comment on Authority and Goals.

Inappropriate procedure. Fast-tracking a major project which has no commercial track record and needs ARRA funding to be viable is bad policy. This deficiency makes full assessment of potential impacts, alternatives, and closure protocols impossible. For example, on p. C.2-3 it is stated "in summary, even with the implementation of staff's proposed conditions of certification, it is unknown if construction and operation of the SES Solar Two project would comply with all applicable laws, ordinances, regulations, and standards (LORS) relating to biological resources, and would be able to mitigate potential impacts to biological resources to less than CEQA significant levels. Similarly for purposes of NEPA compliance, it is unknown if the proposed SES Solar Two project would result in adverse impacts to biological resources due to the lack of information regarding mitigation of Waters of the U.S. These deficiencies call into question the wisdom of fast-tracking a project that has no significant track record.

01-7

p. B.2-6. Re conservation, energy saved is worth more than energy newly generated. There is huge potential to reduce energy demand, and plumbing that source could have substantial impact on CRPS demand.

01-13

This entire section is clumsily organized and incomplete

- p. B.2-110. In connection to the statement on p. B.2-5 re achieving 750 MW of distributed solar energy, why is the California record of distributed PV (with the Nellis AFB facility in Nevada thrown in) relevant to a viable alternative to Solar Two? There are many other such facilities operating in other states.
- p. B.2-111. So, how good is the assumed 30% capacity factor for solar thermal? The 9 SEGS parabolic mirror facilities climb that high only by liberal use of natural gas in non-solar periods—22% is closer to what they get from solar alone.
- p. B.2-111. The SDSE plan, including maximizing Demand Reduction through Energy Efficiency upgrades sounds like a plan. Why not promote such approaches as vigorously as degrading unused desert lands? The DOE assumptions of a majority of installed capacity, 75% will be commercial facilities over 100 kW need not be the goal.
- p. B.2-112. Distributed solar thermal not only uses less land per MW, it requires less road-building than the proposed project, thus eliminating ancillary impacts. Substituting for Solar Two does not require that 750 MW capacity has to all be in one facility, thus maintaining the advantage of short transmission distances.
- p. B.2-113 to 114. The feasibility argument is not relevant. In the same way that BLM is standing on its head to promote rapid development of renewables on public land, a serious program of distributed solar is possible—and for most of the reasons given in the SA/DEIS a distinct benefit to the public notwithstanding the "challenges." That is, distributed solar is the superior alternative.
- p. B.2-114. Is it to be assumed that the discussion here constitutes a rejection of a distributed solar power alternative? If that is the intention, it should be explicitly stated and a section Rationale for Elimination provided as for other rejected alternatives.
- p. B.2-115 to 116. Wind Energy alternative. It should be obvious from the wind potential map of the U.S. that the California desert (and most of the western public lands) are not het places to promote wind developments, certainly not to fast-track their development—most favorable locations in the west are mountain crests, which have major crosion and ecosystem segmentation problems with wind farm development. The nation's prime wind potential lies in a N-S belt east of the Rocky Mountains, mostly on private lands. This is where the discussion should focus and a clear assessment of the comparative compatibility of wind energy development and agriculture and lack thereof of solar development. Restricting the scope of discussion to SES Solar Two's contract to sell electricity to San Diego is not pertinent.

01-15

These comments are submitted on behalf of the Center for Biological Diversity's 255,000 staff, members and on-line activists in California and throughout the western states, regarding the Staff Assessment and Praft Environmental Impact Statement And Draft California Desert Conservation Area Plan Amendment - SES Solar Two Project (the "DEIS") for the proposed SES Solar Two Project in Imperial County, California (hereinafter "proposed project" or "SES Solar 2"), issued by the Bureau of Land Management ("BLM")

The development of renewable energy is a critical component of efforts to reduce greenhouse gas emissions, avoid the worst consequences of global warming, and to assist California in meeting emission reductions set by AB 32 and Executive Orders 5-03-05 and S-21-09. The Center for Biological Diversity (the "Center") strongly supports the development of renewable energy production, and the generation of electricity from solar power, in particular, However, like any project, proposed solar power projects should be thoughtfully planned to minimize impacts to the environment. In particular, renewable energy projects should avoid impacts to sensitive species and habitat, and should be sited in proximity to the areas of electricity end-use in order to reduce the need for extensive new transmission corridors and the efficiency loss associated with extended energy transmission. Only by maintaining the highest environmental standards with regard to local impacts, and effects on species and habitat, can renewable energy production be truly sustainable.

## C. Failure to Identify and Analyze Direct and Indirect Impacts to Biological Resources

The EIS fails to adequately analyze the direct, indirect, and cumulative impacts of the proposed project on the environment. The Ninth Circuit has made clear that NEPA requires agencies to take a "hard look" at the effects of proposed actions, a cursory review of environmental impacts will not stand. Idaho Sporting Congress v. Thomas, 137 F.3d 1146, 1150-52, 1154 (9th Cir. 1998). Where the BLM has incomplete or insufficient information NEPA requires the agency to do the necessary work to obtain it where possible. 40 C.F.R. §1502.22; see National Parks & Conservation Ass'n v. Babbitt, 241 F.3d 722, 733 (9 th Cir. 2001) ("lack of knowledge does not excuse the preparation of an EIS; rather it requires [the agency) to do the necessary work to obtain it.")

Moreover, BLM must look at reasonable mitigation measures to avoid impacts in the DEIS but failed to do so here. Even in those cases where the extent of impacts may be somewhat uncertain due to the complexity of the issues, BLM is not relieved of its responsibility under NEPA to discuss mitigation of reasonably likely impacts at the outset. Even if the discussion may of necessity be tentative or contingent, NEPA requires that the BLM provide some information regarding whether significant impacts could be avoided. South Fork Band Conneil of Western Shoshone v. DOI, 588 F.3d 718, 727 (9th Cir. 2009).

02-1

02-36

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02-38

#### G. The Analysis of Cumulative Impacts in the DEIS Is Inadequate

A cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7. The Ninth Circuit requires federal agencies to "catalogue" and provide useful analysis of past, present, and future projects. City of Carmel-By-The-Sea v. U.S. Dept. of Transp., 123 F.3d 1142, 1160 (9th Cir. 1997); Muckleshoot Industrivite V.U.S. Torest Service, 17T F.3d 800, 809-810 (9th Cir. 1997).

"In determining whether a proposed action will significantly impact the human environment, the agency must consider '[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment.' 40 C.F.R. § 1508.27(b)(7)." Oregon Natural Resources Council v. BLM, 470 F.3d 818, 822-823 (9th Cir. 2006). NEPA requires that cumulative impacts analysis provide "some quantified or detailed information," because "[w]ithout such information, neither courts nor the public . . . can be assured that the Forest Service provided the hard look that it is required to provide." Neighbors of Cuddy Mountain v. United States Forest Service, 137 F.3d 1372, 1379 (9th Cir. 1988); see also id, ("very general" cumulative impacts information was not hard look required by NEPA). The discussion of future foreseeable actions requires more than a list of the number of acres affected, which is a necessary but not sufficient component of a NEPA analysis; the agency must also consider the actual environmental effects that can be expected from the projects on those acres. See Klamath-Siskiyou Wildlands Ctr. v. BLM, 387 F.3d 989, 995-96 (9th Cir. 2004) (finding that the environmental review documents "do not sufficiently identify or discuss the incremental impact that can be expected from each [project], or how those individual impacts might combine or synergistically interact with each other to affect the [] environment. As a result, they do not satisfy the requirements of the NEPA.") Finally, cumulative analysis must be done as early in the environmental review process as possible, it is not appropriate to "defer consideration of cumulative impacts to a future date. 'NEPA requires consideration of the potential impacts of an action before the action takes place." Neighbors, 137 F.3d at 1380 quoting City of Tenakee Springs v. Clough, 915 F.2d 1308, 1313 (9th Cir. 1990) (emphasis in original).

The NEPA regulations also require that indirect effects including changes to land use patterns and induced growth be analyzed. "Indirect effects", include those that "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems." 40 C.F.R. s.1508.8(b) (emphasis added). See TOMAC v. Norton, 240 F. Supp. 24 45, 50-52 (D.D.C. 2003) (finding NEPA review lacking where the agency failed to address secondary growth as it pertained to impacts to groundwater, prime farmland, floodplains and stormwater run-off, wetlands and wildlife and vegetation), Friends of the Earth v. United States Army Corps of Eng'rs, 109 F. Supp. 24 30, 43 (D.D.C. 2000) (finding NEPA required analysis of inevitable secondary

D-24

development that would result from casinos, and the agency failed to adequately consider the cumulative impact of casino construction in the area); see also Mullin v. Skimmer, 756 F. Supp. 904, 925 (E.D.N.C. 1990) (Agency enjoined from proceeding with bridge project which induced growth in island community until it prepared an adequate EIS identifying and discussing in detail the direct, indirect, and cumulative impacts of and alternatives to the proposed Project), City of Davis v. Coleman, 521 F.2d 661 (9th Cir. 1975) (requiring agency to prepare an EIS on effects of proposed freeway interchange on a major interstate highway in an agricultural area and to include a full analysis of both the environmental effects of the exchange itself and of the development potential that it would create).

#### H. The EIS's Alternatives Analysis is Inadequate

NEPA requires that an EIS contain a discussion of the "alternatives to the proposed action." 42 U.S.C. §§ 4332(C)(iii),(E). The discussion of alternatives is at "the heart" of the NEPA process, and is intended to provide a "clear basis for choice among options by the decisionmaker and the public." 40 C.F.R. §1502.14; Idaho Sporting Congress, 222 F.3d at 567 (compliance with NEPA's procedures "is not an end in itself . . . [but] it is through NEPA's action forcing procedures that the sweeping policy goals announced in § 101 of NEPA are realized.") (internal citations omitted). NEPA's regulations and Ninth Circuit caselaw require the agency to "rigorously explore" and objectively evaluate "all reasonable alternatives." 40 C.F.R. § 1502.14(a) (emphasis added); Envtl. Prot. Info. Ctr. v. U.S. Forest Serv., 234 Fed. Appx, 440, 442 (9th Cir. 2007). "The purpose of NEPA's alternatives requirement is to ensure agencies do not undertake projects "without intense consideration of other more ecologically sound courses of action, including shelving the entire project, or of accomplishing the same result by entirely different means." Envtl. Defense Fund, Inc. v. U.S. Army Corps of Engrs., 492 F.2d 1123, 1135 (5th Cir. 1974). An agency will be found in compliance with NEPA only when "all reasonable alternatives have been considered and an appropriate explanation is provided as to why an alternative was eliminated." Native Ecosystems Council v. U.S. Forest Serv., 428 F.3d 1233, 1246 (9th Cir. 2005); Bob Marshall Alliance v. Hodel, 852 F.2d 1223, 1228-1229 (9th Cir. 1988). The courts, in the Ninth Circuit as elsewhere, have consistently held that an agency's failure to consider a reasonable alternative is fatal to an agency's NEPA analysis. See, e.g., Idaho Conserv. League v. Mumma, 956 F.2d 1508, 1519-20 (9th Cir. 1992) ("The existence of a viable, but unexamined alternative renders an environmental impact statement inadequate.").

#### III. Conclusion

Thank you for your consideration of these comments. In light of the inadequacy of the environmental review to date, we urge the BLM to revise and re-circulate the DEIS or prepare a supplemental DEIS before making any decision regarding the proposed plan amendment and right-of-way application. In the event BLM chooses not to revise the DEIS and provide adequate analysis, the BLM should reject the right-of-way application and the plan amendment. Please feel free to contact us if you have any questions about these comments or the documents provided.

02-38

02-40

04-1

This letter constitutes the comments on the above captioned proposed solar project and draft environmental impact statement (DEIS) of the Natural Resources Defense Contail (NRDC) and The Wilderness Society (TWS), national environmental membership organizations with long histories of advocacy on behalf of the lands and resources administered by the Bureau of Land Management (BLM). More recently these organizations have been intensively involved in the Bureau's work to develop a comprehensive solar program as well as its efforts to "fast track" the permitting of individual utility-scale solar projects in California so that they may be eligible for grant finding under the American Recovery and Reinvestment Act of 2009 (ARRA).

Introduction: Our organizations recognize the need to develop the nation's renewable energy resources and to do so rapidly in order to respond effectively to the challenge of climate change. Unique natural resources here in California are already being affected by climate change, including, for example, the pikas of Yosemite National Park and the Joshua trees in Joshua Tree National Park. We also recognize that renewables development can help create jobs in communities that are eager for them, because of the nation's economic crisis. For these and other related reasons, our organizations are working with regulators and project proponents to move renewables projects forward. That said, renewable development is not appropriate everywhere on the public lands and must be balanced against the equally urgent need to protect unique and sensitive resources of the California Desert Conservation Area (CDCA). California is lucky indeed that we have sufficient renewable resources, including solar resources, to do their development in an environmentally and fiscally sensitive way.

As we and our colleagues at sister organizations have repeatedly stated, the best way to develop the solar resources of the CDCA is through comprehensive, pro-active planning by both the federal government and the state to identify the most appropriate areas for such development i.e., solar development zones -- and to guide development to those zones. See, e.g., letter dated June 29, 2009 to Interior Secretary Salazar and California's Governor Schwarzenegger and signed by 11 organizations, including our own, attached as Exhibit 1.

We support the BLM's adoption of zone designation for its forthcoming solar programmatic EIS because of the benefits inherent in this approach, including but not limited to clustering

development of large-scale projects in appropriate places, rather than permitting them to be located across the landscape in numerous locations. We also appland the agency's – and the Interior Department's – commitment to work closely with the State of California in the development of the Desert Renewable Energy Conservation Plan which, as you may already know, will designate not only renewable energy development zones, but also zones for conservation as well as include a comprehensive mitigation strategy. The integration and completion of both of these efforts offers the promise of a balanced plan that will facilitate development of renewable resources in the Desert while protecting desert resources.

Despite our fundamental belief in the critical importance of agency-guided development of renewables, rather than developer-imitated development, we have, as indicated, been investing a great deal of time and effort into the fast track projects. We have done so in response to the emphasis the Department, the BLM and the developers place on meeting ARRA deadlines as well as the potential role these projects could play in meeting the renewable generation and economic goals of the state and federal governments. We have also done so because we wanted to make the projects, and especially the utility scale solar projects, as environmentally sensitive as they can be and because we wanted to ensure, to the extent possible, that their accompanying environmental documents are as sound as they can be. It is now apparent to us that not even the best of the environmental documents being produced for the fast track projects and/or the best projects should be models or precedents for the future.

The fast track project stes were chosen without the benefit of sting criteria developed either by desert activists, environmental organizations, scientists and others, are Renewable Siting Criteria for Califomia Desert Conservation Area, attached to June 29, 2009 letter referred to above, or by the Bureau. The Bureau in fact has yet to develop any siting guidance that would help field staff, developers and others identify appropriate sites – i.e., those with relatively low resource values and fewer resource conflicts. Moreover, the projects themselves were designated by Interior and the BLM as fast track projects without consideration of potential environmental issues. And, equally important, the timetable established for review of these projects did not take into account their scale, the agency's lack of experience permitting these kinds of projects.

Regardless of the outcome of the environmental review process for this or any other fast track project, we urge the BLM and the Interior Department to acknowledge publicly the deficiencies of the current process and to commit publicly to improving it. More specifically, we urge both entities to affirm that neither the current process, nor any of the project sites, nor any of the environmental documents, establish any legal or procedural precedents for future decision-making, siting or environmental review. We make this urgent recommendation notwithstanding the fact that this particular project appears to be proposed for an appropriate site and the accompanying DEIS represents an improvement in several respects over other such documents.

The SFS Solar Two Project. The proposed project site appears to have potential for developing large scale solar energy with fewer impacts to sensitive resources than some other areas with high solar potential being considered for such development by the BLM. Site characteristics that are conducive to solar development include the presence of disturbed acreage, "approximately 1,059 acres of dirt and off highway rehicle (OHV) roads on BLM administered land" see SES Solar Two Project CEC-BLM SA/DEIS at C.2-1. In addition, there are "a rail line, transmission line and buildings in the study area" id.C.2.11. Another characteristic conducive to solar development is the existing transmission capacity that exists to support the first 300 MW of the project without any upgrades, id. ES-2. The site is also served by existing road access from Interstate 8, id. ES-5, although miles of new roads are contemplated as part of the project proposal.

Equally important, the lands subject to this Right of Way (ROW) application appear to be of comparatively lower natural resource values than some of the other ROW applications currently being considered for ARRA funding: the site includes no critical habitat for any listed species, and implicates no Area of Critical Environmental Concern (ACEC) designated by the BLM. Also, no desert tortoise, a federally endangered species, were found on the site, id. ES-21, unlike other ARRA project sites such as Brightsource's Ivanpah project and Solar Millennium's Ridgecrest project which support sizable populations of this endangered species. See Ivanpah Solar Electric Generating System CEC-BLM SA/DEIS at 6.2-29 and Ridgecrest Solar Power Project CEC-BLM SA/DEIS at 6.2-29 and Ridgecrest solar Power Project CEC-BLM SA/DEIS is Ridgecrest project is no longer on the ARRA "fast track" list). While the above characteristics render the site more appropriate than some other locations for solar development, we do still have concerns about project impacts and the draft EIS document.

D-28

04-2

<u>Project Phasing</u>: As previously mentioned in scoping comments submitted by our organizations on December 31, 2008, the technology for the Stitling Two plant has not been deployed at commercial scale, and we would urge the BLM to consider issuing a condition on the permit to limit construction of the first 300 MW of the project until such time that commercial application of this technology at this site has been demonstrated. This would allow the project proponent and the permitting agencies to learn from the first 300 MW of development and make any necessary adjustments to construction and operation practices based on lessons learned from this experience.

04-7

## VIII. IF AN ACTION IS TAKEN, BLM SHOULD ADOPT THE NO ACTION ALTERNATIVE WHICH WOULD MAKE THE AREA UNAVAILABLE FOR FUTURE SOLAR DEVELOPMENT.

The SA/DEIS studies three No Action Alternatives under NEPA, each of which would result in a different CDcA Plan: (1) the No Action/OCDA Plan amendment Alternative; (2) the No Action/Amend the CDCA to make the area available for future solar development Alternative; and (3) the No Action/Amend the CDCA to make the area unavailable for future solar development Alternative; and (3) the No Action/Amend the CDCA to make the area unavailable for future solar development Alternative ("Unavailable Alternative") (emphasis added). We support the third alternative because it will provide the greatest protection to this immaculate landscape and will ensure that the character of the area is preserved for future generations.

06-17

The SA/DEIS recognizes that adoption of this alternative would prevent future environmental impacts from other renewable energy projects. Unless this alternative is adopted, "other renewable energy projects" with "similarly]" devastating cultural impacts could be approved. SA/DEIS, p. C.2-142. Adoption of the Unavailable Alternative would also prevent future impacts to the PBHS, FTHL, and special-status plant species. SA/DEIS, p. C.2-70. Visual resources would be similarly protected. SA/DEIS, p. C.3-33.\* BLM should demonstrate its commitment to the preservation of our nation's rapidly disappearing desert lands by adopting the Unavailable Alternative.

CONCLUSION

For these reasons, the SA/DEIS violates both NEPA and CEQA. Accordingly, it should be revised and re-released. With regard to the various CDCA Amendment alternatives, the No Action/Amend the CDCA to make the area unavailable for future solar development Alternative should be adopted.

We have a great interest in this project as it lies in a unique part of the California Desert that we have both visited and spent time in, the Colorado Desert of the Imperial Valley, an imperiled biologically rich region. We have both participated in Flat-tailed horned lizard surveys in the county near the project site. But even more, we have camped and hiked in the area, on public land, and enjoyed the scenic value of deserts outside of parklands.

07-1

There is so much history here, beauty, that cannot be replaced or mitigated. We urge the No Action alternative with no future solar projects.

#### I. INTRODUCTION

On behalf of California Unions for Reliable Energy ("CURE"), this letter provides comments on the Draft Environmental Impact Statement ("DEIS") for the Imperial Valley, formerly Solar Two Project ("Project"). The Bureau of Land Management ("BLM") is the lead federal agency for evaluating the environmental impacts of the proposed right-of-way grant under the National Environmental Policy Act ("NEPA"). BLM has identified several key issues and has provided preliminary analyses of these issues in the DEIS. However, as explained more fully below, the DEIS does not satisfy the basic requirements of NEPA. I An adequate, revised DEIS must be prepared and circulated for public review and comment.

CURE is a coalition of unions whose purpose is to help solve the State's energy problems by building, maintaining and operating conventional and renewable energy power plants. Environmental degradation jeopardizes future jobs by causing construction moratoriums, eliminating protected species and habitat, using limited fresh water, and putting added stresses on the environmental carrying capacity of the state. This reduces future employment opportunities. In contrast, well designed projects that reduce environmental impacts of electricity generation improve long-term economic prospects.

09-1

Individual members work in areas affected by environmental degradation and health and safety risks from industrial development. Individual members also live in and use areas that will suffer the impacts of projects related to power plant development, including noise and visual intrusion, water and soil pollution, and destruction of archaeological and wildlife habitat areas.

Based on these concerns, CURE and its members have a strong interest in ensuring that projects comply with NEPA and all applicable federal, state, and local laws and regulations.

These comments are supported by the attached comments of Dr. Vernon Bleich, Scott Cashen, Dr. Christopher Bowles and Christopher Campbell. These expert qualifications and comments are attached and incorporated herein.

my comment is negative on any further building in this area as too much construction has already destroyed too much of this fragile habitat without concern for proper studies and impact reports.

P3-1

We recently learned about the proposed solar array that would cover a 6000 acre site in a sensitive area of imperial Couply near Quotilb Springs. While we are quencity lever push in support of devoloping netweable sources of power as an alternative to test it us powered plants, we are also aware of the great environmental harm that would be done by a facility that would cover 5000 acres of land. Trading the environmental impact of the carbon reduction residued by this type of part, with the shading 6500 acres of desert is not, in our view a reasonable trade-off. We believe solar power can be designed in an one food manner obsert to the communities that will be served.

Covering 5000 acres of land to generate power for homes and businesses many miles away is not environmentally prudent and also requires considerable infrastructure to transmit the power to these exercise.

P4-1

Please register these comments in opposition to the proposed soar array on environmental grounds. Glenn Kirby

>>> Cody Hanford <codyhanford@gmail.com> 5/13/2010 9:31 PM >>> In regards to the Imperial Valley Solar Project:

I am a resident of the California Desert and I am concerned about the Imperial Valley Solar project. While I applicated our country's interest in reverselve energy, I strongly oppose developing these projects in midsturbed, pristine public lands, I have traveled extensively in the California Desert and there are many thousands of acres more suitable for large solar projects than the area selected for Imperial Valley Solar. Have you been to this acres? This a beautiful, inche coopstem that remains Intact. Just because it is not covered by forests and streams does not make it acceptable to dear it, grade it, and cover it with mirrors. I suggest you wist this area and see for your set? I have travel to the heart of Imperial County, to El Centro, Niland, Brawley, and Caladoo and further investigate the large, disturbor invote of land that would be great for soft in my opinion. It makes no sense to destroy more undouched and when there are already areas cleared of vegetation and ready for development. I feel that these solar companies are choosing the esulpyriolizable very out when centry power in the because we have made bed judgements in the past and we are now paying for E.
Please do not reward energy companies who continue to make bed decisions motivated by the bottom line instead of reasonable and dioxide decisions motivated by the bottom line instead of reasonable and dioxide decisions motivated by the bottom line instead of

P6-1

Sincerely,

Cody Hanford

Response: These comments do not raise environmental issues under the National Environmental Policy Act (NEPA), provide general comments or statements without raising a specific environmental question, and/or represent an opinion of the commenter that does not raise issues under NEPA. In compliance with NEPA, the BLM prepared a Final Environmental Impact Statement (FEIS) and that FEIS will be available to the public for 30 days. After publication of the FEIS and after consideration of the comments received on the SA/DEIS, including comments regarding the IVS project, possible BLM actions related to a right-of-way grant or an amendment to the California Desert Conservation Area Plan (CDCA Plan, 1980, as amended), or environmental issues, the BLM may select an alternative and set forth its approval in a Record of Decision (23 Code of Federal Regulations [CFR] 771.127) along with a summary of the adverse impacts of the project and avoidance, minimization, and mitigation measures incorporated into the Agency Preferred Alternative to complete the environmental process under NEPA.

## D.4.2 Project Alternatives

These comments raised questions regarding the description of the Imperial Valley Solar (IVS) project, the alternatives to the project, and other possible alternatives for consideration. This section responds to those questions and discusses and clarifies issues concerning the project and the alternatives to the project evaluated in the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) and the Final Environmental Impact Statement (FEIS). Responses to comments on the purpose and need for the project are discussed later in Section D.4.3, Purpose and Need.

Comments: F1-6, F2-1, F2-2, F2-3, F2-7, F2-14, F2-16, F2-39, F2-40, NA1-2, S2-2, O1-11, O1-15, O1-16, O2-17, O2-41, O3-3, O4-2, O6-13, O6-14, O9-50, P1-1, P7-7, P10-6, O1-8, O1-12, O2-2, O2-3, O2-5, O2-9, O2-10, O6-2, and P11-25.

NPS prefers alternatives that would locate the project within or adjacent to existing disturbed lands, either in Imperial County, or closer to metropolitan areas that would consume the energy generated by the project. The merits of such alternatives need to be fully examined in the final EIS. Locating the proposed project on or near existing agricultural or urbanized areas in the vicinity would avoid or minimize impacts to the natural landscape. The Mesquite Lake and Agricultural Lands Alternatives for this project, evaluated under CEOA, would meet some of these criteria and avoid impacts to the historic corridor of the Anza NHT. It should also be noted that the Mesquite Lake and South of Highway 98 Alternatives would be located adjacent to the Auto Tour Route of the Anza NHT (Highways 98 and 86), but these Alternative locations would preferable to the proposed project site.

F1-6

F2-1

F2-2

The U.S. Environmental Protection Agency (EPA) has reviewed the Joint Draft Environmental Impact Statement (DeIS) and Staff Assessment for the Imperial Valley Solar Project (Project). Our review and comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) Regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act (CAA).

I am directing this comment letter to you because of our concerns over the Project's environmental impacts, insufficient evaluation of potentially environmentally preferable alternatives, and implications for other nenewable energy projects that have been proposed on Bureau of Land Management (BLM) lands throughout our Region. In light of these concerns, and our recent adverse rating of BLM's Amargosa Solar Millenium Project in Nevada, (comments submitted on May 17, 2010), I would like to meet with you and BLM's Nevada State Director Ron Wenker in the next 30 to discuss these issues further. I believe it is important for us to coordinate now to avoid unnecessary delays in the NEPA process as we all work toward the nation's renewable energy goals.

EPA supports increasing the development of renewable energy resources in an expeditious and well planned manner. Using renewable energy resources such as solar power can help the nation meet its energy requirements while reducing greenhouse gas emissions. While renewable energy facilities offer many environmental benefits, appropriate siting and design of such facilities is of paramount importance if the nation is to make optimum use of its renewable energy resources without unnecessarily depleting or degrading its water resources, wildlife habitats, recreational opportunities, and scenic vistas.

BLM has identified thirty-four proposed renewable energy projects as "fast track" projects that are expected to complete the environmental review process and be ready to break ground by December 2010 in order to be eligible for funding under the American Recovery and Reinvestment Act (Section 1603). Twenty-eight of these projects are located in our Region, of

which fourteen are located in California. We are aware that many more projects that have not been designated "fast-truck" are also being considered by BLM. Many, if not all, of these projects, fast track or otherwise, are proposed for previously undeveloped sites on public lands. In making its decisions regarding whether or not to grant rights-of-way for such projects, we recommend that BLM consider a full range of reasonable alternatives to minimize the adverse environmental impacts. Such alternatives could include alternative technologies or altered project footprints at the proposed locations, as well as alternate sites, such as inactive mining or other disturbed sites that may offer advantages in terms of availability of infrastructure and less vulnerable habitats. Given the large number of renewable energy project applications currently under consideration, particularly in the Desert Southwest, we continue to encourage BLM to apply its land management authorities in a manner that will promote a long-term sustainable balance between available energy supplies, energy demand, and protection of ecosystems and human health.

On November 18, 2008, EPA provided extensive formal scoping comments for the proposed Project which included a variety of detailed recommendations regarding purpose and need, range of alternatives, water resources, and other resource areas of concern. On May 12, 2010, we submitted comments (enclosed) to the Army Corps of Engineers (Corps) on the March 15, 2010 Public Notice (Application for Permit) which highlighted our recommendations to comply with Section 404(b)(1) of the Clean Water Act Guidelines. EPA continues to work collaboratively with the Corps, fellow resource and regulatory agencies, and the applicant toward the goal of arriving at a permittable Project, while protecting natural resources.

F2-3

environmental impacts of its use should be fully incorporated into the FEIS. Lastly, we have concerns that two of the three off-site alternatives included in the DEIS would have reduced impacts to key resources areas, but were eliminated from further consideration.

F2-

Analysis of Alternatives - 40 CFR 230.10(a)

In order to comply with the Guidelines, the Applicant must comprehensively evaluate a range of alternatives to ensure that the "preferred" alternative is the Least Environmentally Damaging Practicable Alternative (LEDPA). Identification of the LEDPA is achieved by performing an alternatives analysis that estimates the direct, indirect, and cumulative impacts to jurisdictional waters resulting from a set of on- and off-site project alternatives. Project

alternatives that are not practicable and do not meet the project purpose are eliminated. The LEDPA is the remaining alternative with the fewest impacts to aquatic resources, so long as it does not have other significant adverse environmental consequences. Only when this analysis has been performed can the applicant and the permitting authority be assured that the selected alternative is the LEDPA (40 CFR 230.10(a)).

Over the course of the past several months, we have been working collaboratively with the Corps, fellow resource and regulatory agencies, and the Applicant on the proposed Project. On April 28, 2010, EPA met with the Applicant and the Corps to discuss new alternatives proposed by the Applicant to reduce impacts to aquatic resources. We appreciate the Applicant's effort toward compliance with the Guidelines. On May 12, 2010, EPA submitted comments to the Corps identifying our concerns with the Public Notice (Permit for Application). Given the importance of the desert ephemeral washes, which are tributaries to the New River and the Salton Sea, and the limited information currently available regarding the Project—particularly related to practicable alternatives with fewer impacts to aquatic resources—EPA determined that the project may result in substantial and unacceptable impacts to "aquatic resources for national importance" (ARNI), and identified the permit action as a candidate for elevation to the Corps' and EPA's respective headquarters. The ephemeral waters at the Project site have been designated as ARNI due the hydrologie, biogeochemical, and habitat functions that directly affect the integrity and functional condition of waters downstream at the New River and the Salton Sea.

Based on our review of the DEIS and the Public Notice, additional information, including an offsite alternatives analysis, analysis of impacts associated with site design (e.g., perimeter fencing and roads), and onsite alternative designs (e.g., future development of in holdings, additional avoidance through removal of SunCatchers in drainages, alternative locations of substation, maintenance buildings, holding areas and assembly tents) is necessary in order to ensure authorization of the LEDPA.

At this time, the DEIS and the Public Notice provide minimal consideration of practicable alternatives in light of costs, logistics, and existing technology as required under the Guidelines, and, as a result, we cannot determine the extent to which each alternative is practicable and should be considered as the LEDPA. The DEIS presents four on-site alternatives including the Applicant's proposed 750 MW full build-out alternative, two 'Drainage Avoidance' alternatives, and a 300 MW reduced project size alternative. Additionally, the DEIS contains an evaluation of three off-site alternatives; however, these off-site alternatives are included for CEQA purposes only and are eliminated from further consideration under NEPA for their failure to meet BLM's purpose and need for the proposed Project (at pg. B.2-2). A full analysis of off-site alternatives be given full consideration under NEPA and to demonstrate compliance with the Guidelines. The DEIS indicates that all three of the off-site alternatives would have less severe cultural and visual impacts than would occur at the proposed site, and two of the three alternative sites (located on disturbed lands) would also have reduced impacts to

<sup>&</sup>lt;sup>1</sup> This letter follows the field level procedures outlined in the August 1992 Memorandum of Agreement between the EPA and the Department of the Army, Part IV, paragraph 3(a) regarding section 404(q) of the Clean Water Act.

biological resources (at pg. B.2-1). As previously mentioned, EPA supports the consideration of off-site alternatives on disturbed lands, including fallow agricultural lands, and other candidate parcels that are currently under consideration by BLM as 3 Folar Energy Study area.

As part of determining the LEDPA, the FEIS should further justify the elimination of the 300 MW Phase I as a practicable alternative. Based on the information in the DEIS, it appears that the Phase I alternative may be practicable and less environmentally damaging to jurisdictional waters when compared to the proposed Project alternative. It is our understanding that the Applicant has a Power Purchase Agreement with SDG&E to provide 300 MW of power once on-line. The FEIS should confirm that this is the case. In light of the contingency of Phase II of the Project upon the Sunrise Powerlink Transmission Line (SPTL) (at gg. B. 1-19), it appears that the 300 MW alternative may have been considered by the Applicant or SDG&E to have independent utility. Additionally, SPTL appears to be further delayed based on the recent decision by the Cleveland National Forest Service Supervisor to open up the project for further public review. The FEIS should also discuss the implications to the proposed Project if the SPTL is not built. As such, a single 300 MW plant would be considered an on-site less environmentally damaging, practicable alternative, pursuant to the Guidelines. Finally, the FEIS should analyze a 300 MW alternative in a design configuration that avoids all impacts to Waters on-site.

#### Recommendation:

 EPA recommends that BLM include analyses of on- and off-site alternatives in the FEIS to support the identification of the LEDPA. Sufficient detail should be provided to allow for meaningful comparisons.

The DEIS has not clearly demonstrated that all practicable measures to minimize unavoidable impacts to potential waters of the United States have been incorporated into the proposed project design. For example, according to an April 26, 2010 Preliminary Draft 404B-1 Alternatives Analysis For the Imperial Valley Solar Project, all on-site design alternatives utilize the same location and footprint for the Main Service Complex, which results in 18 acres of permanent impacts to Waters. The FEIS should evaluate alternative locations, as well as the reconfiguration or redesign of building footprints within the Main Service Complex, to avoid jurisdictional waters. The FEIS should also discuss alternate designs that reduce the size of holding areas, and consider minimizing the number of temporary assembly tents required to outfit the facility. We note that the DEIS appears to indicate that only one assembly building is necessary (at pg. C.7-14).

Similarly, the FEIS should fully describe the potential for avoiding redundancy of arterial and perimeter roads, as well as further elimination of SunCatchers in drainages, which could result in avoidance of jurisdictional waters. The FEIS should provide additional details, including acres of Waters avoided, as a result of these avoidance measures. Avoidance of sensitive plant species should be an important consideration in the design and configuration of the SunCatcher lavouts as well.

F2-14

F2-16

## Reasonable Range of Alternatives Analysis

CEQ Regulations for implementing NEPA (40 CFR, Parts 1500 - 1508) state that the alternatives section of an Els Should "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly describe the reasons for their having been eliminated" (40 CFR, part 1502.14). All reasonable alternatives that fulfill the purpose of the project's purpose and need should be evaluated in detail, including alternatives outside the legal jurisdiction of the BLM (Council on Environmental Quality's (CEQ) Forty Questions, \*42 and #2b).

The DEIS indicates that BLM interprets the above to apply to "exceptional circumstance" and limits its application to broad, programmatic EISs that would involve multiple agencies. The DEIS further indicates the "purpose and need statement should be constructed to reflect BLM's discretion consistent with its decision space under its statutory and regulatory requirements. Thus, alternatives that are not within BLM jurisdiction would not be considered reasonable" (at pg. B.2-7). The FEIS should cite the specific regulation or BLM policy that overrides CEQ's guidance and supports this claim. Further, BLM should discuss this issue in the context of the recent decision to include an off-site alternative in the recently released Ivanpah Solar Electric Generating System Supplemental DEIS for which BLM serves as the lead Federal agency. We commend BLM for the decision to incorporate off-site, potentially environmentally preferable alternatives on that project.

Additionally, as discussed above regarding the CWA Section 404 Alternatives Analysis, a full evaluation of off-site alternatives will be necessary to support a LEDPA demonstration.

As stated in our scoping comments, reasonable alternatives should include, but are not necessarily limited to, alternative sites, capacities, and technologies as well as alternatives that identify environmentally sensitive areas or areas with potential use conflicts. A robust range of alternatives will include more options for avoiding significant environmental impacts.

<sup>4</sup>Forty Most Asked Questions Concerning CEQ's NEPA Regulations, 40 CFR Parts 1500-1508, Federal Register, Vol. 46, No. 55, March 23, 1981.

#### Recommendations:

- Include supporting documentation and additional discussion on BLM's rationale for the elimination of off-site alternatives from further consideration under NEPA.
- Clearly identify the economic criteria used for analyzing alternatives. As appropriate, fully consider alternatives rejected in the earlier analysis. If a cost-benefit analysis of the proposed Project and the various alternatives has been completed, it should be incorporated by reference in, or appended to, the FEIS (40 CFR 1502.23) and summarized in the Executive Summary.

F2-39

#### Consideration of Disturbed Site Alternatives

As additional alternatives are considered for evaluation in the FEIS, as well for future projects, FPA continues to recommend the identification of locations that have been previously disturbed or contaminated. The FEIS should discuss any methods or tools BLM has used to identify and compare locations for siting renewable energy facilities, and to ascertain whether or on any disturbed sites are available that would be suitable for the proposed project. For example, the EPA's Re-Powering America initiative works to identify disturbed and contaminated lands appropriate for renewable energy development. For more information on that initiative, visit http://www.epa.gov/osweropa/.

F2-40

#### Recommendations:

- EPA strongly encourages BLM to promote the siting of renewable energy projects on disturbed, degraded, and contaminated sites, before considering large tracts of undisturbed public lands.
- The FEIS should include information regarding all criteria used to evaluate the Project site and alternatives.

for development of a short-term energy source. Alternative locations that have been subject to prior disturbance and that lack the cultural significance of this area should be evaluated further.

NA1-2

First and foremost, it would seem to us (as has undoubtedly been pointed out by others) that from a land use and landscape conservation perspective the proposed 6,000+ acre project would provide far more benefit to the public and the citizens of California if it were sited on nearby fallowed farmlands, or other previously disturbed lands – rather than undisturbed desert lands currently in public ownership. Virtually all of the negative biological and aesthetic impacts associated with the proposed project (and the necessity of a large-scale mitigation program) could be eliminated with a change to a previously-disturbed site

S2-2

Inadequate assessment of alternatives. It is asserted (p. B.2-2) that distributed PV placed on surfaces such as rooftops and parking facilities would require extensive acreage, and increasing distributed solar "faces challenges in manufacturing capacity, cost, and policy implementation." The adequacy of rooftop PV to supplant the Solar Two power production is well-demonstrated by NREL reports not cited in this document. Inclusion of distributed generation on brownfields, and small near-urban power plants directly serving local customers also has high potential, as does passive building design and retrofitting. So such developments face challenges, so do utility-scale PV and concentrating solar facilities, plus other major challenges such as transmission facilities not shared by distributed solar. The position taken by CEC and BLM is narrow and unimaginative.

- p. B 2-2. Rejection of all offsite alternatives deemed unreasonable by the BLM because, as discussed below, none would accomplish the purpose and need for the proposed action. Considering that the BLM statement of Purpose and Need addresses only paperwork requirements, not real underlying purposes and needs as required by NEPA, this rejection is unreasonable.
- p. B.2-2. Out of hand rejection of other generation technologies simply underscores impact issues of the proposed project. For example, this document does not demonstrate differences in greenhouse gas releases on any rigorous basis, including effects of release by land disturbance to create the facilities, the GHG cost of producing the hydrogen to be used by Solar Two, and the actual extensive use of natural gas as at existing concentrating solar power plants.
- p. B.2-5. Alternatives Table 1. The statement "While it will very likely be possible to achieve 750 MW of distributed solar energy over the coming years, the limited numbers of existing facilities make it difficult to conclude with confidence that this much distributed solar will be available within the timeframe required for the SES Two project" is absurd on two counts: 1) there is no existing SunCatcher facility to rely on either, and 2) the only requirement that Solar Two meet the chosen timeframe is to qualify the

builders for free federal dollars. Moreover, distributed solar power does not require grid interconnection, except for local small plant operations, which is much more limited than remote power plants.

p. B.2-5, Alternatives Table 1. Why is the discussion of wind energy restricted to Imperial and eastern San Diego counties? While environmental impacts could also be significant, they might also be less—and wind is much more compatible with many agricultural land uses than solar.

- p. B.2-110. In connection to the statement on p. B.2-5 re achieving 750 MW of distributed solar energy, why is the California record of distributed PV (with the Nellis AFB facility in Nevada thrown in) relevant to a viable alternative to Solar Two? There are many other such facilities operating in other states.
- p. B.2-111. So, how good is the assumed 30% capacity factor for solar thermal? The 9 SEGS parabolic mirror facilities climb that high only by liberal use of natural gas in non-solar periods—22% is closer to what they get from solar alone.
- p. B.2-111. The SDSE plan, including maximizing Demand Reduction through Energy Efficiency upgrades sounds like a plan. Why not promote such approaches as vigorously as degrading unused desert lands? The DOE assumptions of a majority of installed capacity, 75%, will be commercial facilities over 100 kW need not be the goal.
- p. B.2-112. Distributed solar thermal not only uses less land per MW, it requires less road-building than the proposed project, thus climinating ancillary impacts. Substituting for Solar Two does not require that 750 MW capacity has to all be in one facility, thus maintaining the advantage of short transmission distances.
- p. B.2-113 to 114. The feasibility argument is not relevant. In the same way that BLM is standing on its head to promote rapid development of renewables on public land, a serious program of distributed solar is possible—and for most of the reasons given in the SA/DEIS a distinct benefit to the public notwithstanding the "challenges." That is, distributed solar is the superior alternative.
- p. B.2-114. Is it to be assumed that the discussion here constitutes a rejection of a distributed solar power alternative? If that is the intention, it should be explicitly stated and a section Rationale for Elimination provided as for other rejected alternatives.
- p. B.2-115 to 116. Wind Energy alternative. It should be obvious from the wind potential map of the U.S. that the California desert (and most of the western public lands) are not the places to promote wind developments, certainly not to fast-track their development—most favorable locations in the west are mountain crests, which have major crossion and ecosystem segmentation problems with wind farm development. The nation's prime wind potential lies in a N-5 belt east of the Rocky Mountains, mostly on private lands. This is where the discussion should focus and a clear assessment of the comparative compatibility of wind energy development and agriculture and lack thereof of solar development. Restricting the scope of discussion to SES Solar Two's contract to sell electricity to San Diego is not pertinent.

As proposed, the proposed project would cover approximately 6.185 acres (approximately 9.7 square miles) of Sonoran desert scrub that is prime habitat for the federally proposed threatened flat-tailed horned lizard ("FTHL") including foraging habitat for the federally and state listed endangered Peninsular bighorn sheep. Unfortunately, the DEIS for the proposed plan amendment and right-of-way application fails to provide adequate identification

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and analysis of the significant impacts to the endangered Peninsular bighorn sheep, the flat-tailed horned lizard, rare plants, and other biological resources, fails to adequately address the significant cumulative and growth inducing impacts of the project, and lacks consideration of a reasonable range of alternatives. In addition, BLM has failed to fully examine the impact of the proposed plan amendment to the California Desert Conservation Act Plan "CDCA Plan") along with other similar proposed plan amendments that which would result in industrial sites sprawling across the California Desert within habitat that should be protected to achieve the goals of the bioregional plan as a whole.

02-2

Nonetheless, even the inadequate information provided in the DEIS shows that the proposed plan amendment and right-of-way application should be denied because the proposed project will result in significant impacts to a breeding population of flat-tailed homed lizards, which are proposed to be listed under the Endangered Species Act ("ESA"). In addition to direct impacts to the flat-tailed homed lizard, the proposed project is in an area that links the northern and southern populations and management areas for this imperiled species – areas which were set aside for the conservation and recovery of the species. Although the DEIS acknowledges that this site includes documented foraging area for the federally and state endangered Peninsular bighorn sheep (DEIS at C.2-39), the DEIS improperly ignored potential impacts to the bighorn from the loss of this foraging area. Alternative siting, which the BLM failed to adequately address in the DEIS, could significantly reduce the impacts to both of these species, their occupied habitat, and other special status species including potentially rare plants. The Center urges the BLM to revise the DEIS to adequately address these and other issues detailed below and re-circulate the DEIS or a supplemental DEIS for public comment.

02-3

In the sections that follow, the Center provides detailed comments on the ways in which the DEIS fails to adequately identify and analyze many of the impacts that could result from the proposed project, including but not limited to: impacts to biological resources, growth inducing impacts alternatives and cumulative impacts. In addition, if undertaken as proposed, this industrial project is inconsistent with local planning and zoning laws, the Endangered Species Act ("ESA"), the Federal Land Policy Management Act ("FLPMA"), the California Desert Conservation Act ("CDCA"), and other laws, ordinances, regulations and standards.

 The BLM's Analysis of the Proposed Plan Amendment and Proposed Project Fail to Comply with FLPMA.

02-5

As part of FLPMA, Congress designated 25 million acres of southern California as the California Desert Conservation Area ("CDCA"). 43 U.S.C. § 1781(c). Congress declared in FLPMA that the CDCA is a rich and unique environment teeming with "historical, scenic, archaeological, environmental, biological, cultural, scientific, educational, recreational, and commic resources." 43 U.S.C. § 1781(a)(2). Congress fround that this desert and its resources are "extremely fragile, easily scarred, and slowly healed." 1d. For the CDCA and other public lands, Congress mandated that the BLM "shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S. § 1732(b).

The sum total of the plan amendment to the CDCA plan is one sentence: "Permission granted to construct solar energy facility (proposed SES Solar Two Project)." DEIS at A-6. Given the impact of the proposed project on other multiple uses of these public lands at the proposed site as well as other aspects of the bioregional planning, it appears that BLM may also need to amend other parts of the plan as well and should have looked at additional and/or different amendments as part of the alternatives analysis. For example, the project surveys again confirm and provide new information on the biological richness of the area and the relatively robust flat-tailed horned lizard population, the proposed project site as a potential connector between existing Yuha Basin Management Area and the West Mesa Management Area, which were specifically set up for conservation of flat-tailed horned lizard, and also show the utilization of the site by the federally and state endangered Peninsular bighorn sheep. In light of this information, the BLM should consider an alternative plan amendment that would designate this area as an Area of Critical Environmental Concern for habitat conservation or an expansion of the flat-tailed homed lizard management areas in conjunction with improvements to increase wildlife connectivity across Interstate 8. Based on the 2,000 - 5,000 animals (DEIS at C.2-22) that are estimated to be on the proposed project site, the site would serve flat-tailed horned lizard conservation at least as well as the existing Management Areas for the conservation of this species and would also provide connectivity values. This should have been considered as an alternative to the proposed large-scale industrial use, which could instead be sited on previously disturbed areas that provide little habitat values for imperiled wildlife.

As discussed further below regarding FLPMA, and in the section on NEPA and segmentation, the BLM should have taken a more comprehensive look at the plan amendment to determine: 1) whether industrial scale projects are appropriate for any of the public lands in this area; 2) if so, how much of the public lands are suitable for such industrial uses given the need to balance other management goals including flat-tailed horned lizard and Peninsular bighorn sheep conservation and recreational uses; and 3) the location of the public lands suitable for such uses, if any. Rather, BLM appears to have looked at this application and others in the area on BLM managed lands, as well as other proposed projects, in isolation. As a result, this piecemeal approach to project review threatens to undermine the "bioregional" approach in the CDCA Plan as a whole as well as violate the fundamental planning principles of FLPMA.

The DEIS acknowledges that "Under the proposed project an area of roughly 10 square miles, including over 5.6 miles of frontage on Highway 1-8, would experience a dramatic visual transformation from a predominantly natural desert landscape to one of a highly industrial character." DEIS at C. 13-23 (in the context of visual resources). In the DEIS this issue is looked at solely in the context of visual resources, however, and no where in the document does BLM look at the issue of industrialization in the context of biological resources, the CDCA Plan as a whole, or how transformation of this area will affect the overall landscape-wide bioregional planning approach.

The adoption of the proposed plan amendment will change the multiple-use character of these lands which currently provides habitat for imperiled species, recreational uses including a historic trail and other cultural resources, camping and off-road vehicle routes, in favor of a single use that will completely displace other uses on the proposed site. For example, the proposal would require changes in the route network resulting in several routes which would need to be moved-those changes to the route network are simply not addressed in the DEIS (nor are the likely direct, indirect and cumulative impacts of changing those route designations adequately identified or analyzed, as discussed in detail below). Any changes to routes would require BLM to amend the route designations in the area because these routes are part of a network that was adopted through a plan amendment. When BLM does consider these issues, as it must, in a revised or supplemental DEIS, a range of alternatives must be considered in addition to the fact that such changes will undoubtedly change use of the previously existing nearby routes, most likely causing increased use on other nearby routes. Even if BLM attempts to simply reroute along the fenceline for the proposed project a plan amendment would be required and BLM must then consider that new unauthorized routes to provide connections to the other routes, and/or entirely new unauthorized routes may be created by off-road vehicle users to avoid the industrial site entirely. There is no evidence that recreational off-road vehicle users will be content to drive for miles along a fence adjoining an industrial site rather than striking off crosscountry to connect with more scenic routes. Past experience shows that the latter is quite

understandably a much more likely outcome and BLM should recognize this in analyzing the impacts of this project on the existing route network and any proposal to amend that network.

The DEIS's failure to adequately identify or analyze many of the significant impacts to the flat-tailed horned lizard population in the area from direct impacts (loss of habitat, fragmentation, take due to translocation, etc.) indirect impacts, and cumulative impacts is discussed in detail below. In addition, BLM provides no meaningful analysis of how the actual use of the adjacent areas might change if a large 6,0004 are fenced industrial project site is constructed, particularly with regards to recreational activities. Nor there any discussion of the impacts of increased and more concentrated off-road recreation at the translocation sites for the flat-tailed horned lizard from those displaced from the project site, or, more to the point, the need to reduce recreation in areas any translocation areas after flat-tailed horned lizard are removed from the project site under a translocation areas as after flat-tailed borned lizard are removed from the project site under a translocation plan.\(^2\) The DEIS for the proposed plan amendment should at minimum have included an alternative that would limit impacts to the lizards from off-road vehicle use in the translocation areas.

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# A. Purpose and Need and Project Description are Too Narrowly Construed and Unlawfully Segment the Analysis

## 1. Purpose and Need:

Agencies cannot narrow the purpose and need statement to fit only the proposed project and then shape their findings to approve that project without a "hard look" at the environmental consequences. To do so would allow an agency to circumvent environmental laws by simply "going-through-the-motions." It is well established that NEPA review cannot be "used to rationalize or justify decisions already made." 40 C.F.R. § 1502.5; Metcalf v. Daley, 214 F.3d 1135, 1141-42 (9th Cir. 2000) ("the comprehensive 'hard look' mandated by Congress and required by the statute must be timely, and it must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge designed to rationalize a decision already made.") As Ninth Circuit noted an "agency cannot define its objectives in unreasonably narrow terms." City of Carmel-by-the-Sea v. U.S. Dept. of Transportation, 123 F.3d 1142, 1155 (9th Cir. 1997); Muckleshot Indian Tribe v. U.S. Forest Service, 177 F. 3d 900, 812 (9th Cir. 1999). The statement of purpose and alternatives are closely linked since "the stated goal of a project necessarily dictates the range of 'reasonable' alternatives." City of Carmel, 123 F.3d at 1155. The Ninth Circuit recently reaffirmed this point in National Parks Conservation Assn v. BLM, 586 F.3d 735, 746-48 (9th Cir. 2009) (holding that "[a]s a result of [an] unreasonably narrow purpose and need statement, the BLM necessarily considered an unreasonably narrow range of alternatives" in violation of NEPA).

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The purpose behind the requirement that the purpose and need statement not be unreasonably narrow, and NEPA in general is, in large part, to "guarantee[] that the relevant information will be made available to the larger audience that may also play a role in both the decision-making process and the implementation of that decision." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989). The agency cannot camouflage its analysis or avoid robust public input, because "the very purpose of a draft and the ensuing comment period is to elicit suggestions and criticisms to enhance the proposed project." City of Carmel-by-Ine-Sea, 123 F.3d at 1156. The agency cannot circumvent relevant public input by narrowing the purpose and need so that no alternatives can be meaningfully explored or by failing to review a reasonable range of alternatives.

The BLM's purpose and need for the SES Solar Two Project is "to respond to SES Solar Two, LLC's application under Title V of FLPMA (43 U.S.C. 1761) for a ROW grant to construct, operate, and decommission a solar thermal facility on public lands in compliance with FLPMA, BLM ROW regulations, and other Federal applicable laws", and also states that the "BLM authorities include:

- . Executive order 13212, dated May 18, 2001, which mandates that agencies act expediently and in a manner consistent with applicable laws to increase the "production and transmission of energy in a safe and environmentally sound manner."
- . The EPAct, which requires the Department of the Interior (BLM's parent agency) to approve at least 10,000 MW of renewable energy on public lands by 2015.
- Secretarial Order 3285, dated March 11, 2009, which "establishes the development of renewable energy as a priority for the Department of the Interior."

DEIS at A-12. The DEIS notes that an amendment to the CDCA Plan is needed in order to approve the project but does not clearly identify the plan amendment as a part of the project being evaluated. Rather, the DEIS states: "The BLM will decide whether to approve, approve with modification, or deny issuance of a ROW grant to SES Solar Two, LLC for the proposed SES Solar Two Project. The BLM's actions will also include consideration of amending the CDCA Plan concurrently." DEIS at A-12. BLM's purpose and need is very narrowly construed to the proposed project itself and an amendment to the Plan for the project only. The purpose and need provided in the DEIS is impermissibly narrow under NEPA for several reasons, most importantly because it foreclosed meaningful alternatives review in the DEIS. See DEIS at B.2-1 and discussion below regarding alternatives. Because the purpose and need and the alternatives analysis are at the "heart" of NEPA review and affect nearly all other aspects of the EIS, on this basis and others, BLM must revise and re-circulate the DEIS.

The DOE purpose and need statement provides:

The EPAct of 2005 established a Federal loan guarantee program for eligible energy projects that employ innovative technologies. Title XVII of the EPAct of 2005 authorizes the Secretary of Energy to make loan guarantees for a variety of types of projects, including those that "avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases, and employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued".

The two purposes of the loan guarantee program are to encourage commercial use in the United States of new or significantly improved energy-related technologies and to achieve substantial environmental benefits. The purpose and need for action by DOE is to comply with its mandate under EPAct by selecting eligible projects that meet the goals of the Act.

DEIS at A-12. As the applicant admits the proposed project is experimental at the scale proposed: the applicant's objective is states: "To assist in meeting the requirement for additional

generating capacity, the applicant has developed solar technology which requires commercialscale development to demonstrate its technical and commercial viability" DEIS at A-10. Thus, the proposed project appears to meet the DOE criteria because it is admittedly "new"—indeed, experimental — technology at the proposed scale, and the applicant hopes that it will assist in meeting the renewable generating capacity. However, by that same token, the DEIS fails to address the experimental nature of the proposed project including the likelihood of success (or failure) and the consequences of failure (including technological failures and financial failures) and the full extent of the likely resulting impacts to public lands.

In discussing the cumulative scenario, the DOE loan guarantee program is also described as one of the incentive programs for funding renewable energy projects:

Example[s] of incentives for developers to propose renewable energy projects on private and public lands in California, Nevada and Arizona, include the following:

- U.S. Treasury Department's Payments for Specified Energy Property in Lieu of Tax Credits under §1603 of the American Recovery and Reinvestment Act of 2009 (Public Law 1115) - Offers a grant (in lieu of investment tax credit) to receive funding for 30% of their total capital cost at such time as a project achieves commercial operation (currently applies to projects that begin construction by December 31, 2010 and begin commercial operation before January 1, 2017).
- U.S. Department of Energy (DOE) Loan Guarantee Program pursuant to §1703
   of Title XVII of the Energy Policy Act of 2005 Offers a loan guarantee that is also a low interest loan to finance up to 80% of the capital cost at an interest rate much lower than conventional financing. The lower interest rate can reduce the cost of financing and the gross project cost on the order of several hundred million dollars over the life of the project, depending on the capital cost of the project.

DEIS at B.3-2 to 3.

The Center is well aware that deadlines for funding, particularly for the American Recovery and Reinvestment Act ("ARRA") funds, have driven the pace of the environmental review for this project and, while such funding mechanisms are important, deadlines cannot be used as an excuse for rushed and inadequate NEPA review. The BLM and DOE must be concerned with the adequate NEPA review and even if the agencies can properly have an objective of timely approval of projects they cannot properly have as purpose and need of the project a rushed inadequate environmental impact review.

S As the BLM is aware, the largest installation of Stirling suncatchers is a 1.5 MW, 60 dish facility in Maricopa County, Arizona installed in January 2010. The proposed project is proposed to install 30,000 suncatchers (DEIS at B.1-20) approximately 500 times larger. http://www.stirlingenerge.com/ddf/2010\_01\_22.pdf

Moreover, in its discussion of the need for renewable energy production the DEIS fails to address risks associated with global climate change in context of including both the need for climate change mitigation strategies (e.g., reducing greenbouse gas emissions) and the need for climate change adaptation strategies (e.g., conserving intact wild lands and the corridors that connect them). All climate change adaptation strategies underline the importance of protecting intact wild lands and associated wildlife corridors as a priority adaptation strategy measures.

As the DEIS admits, building the proposed project at the proposed location "would permanently eliminate approximately 5,024.4 acres of Sonoran croesote bush scrub and approximately 1,03.87 acres of disturbed/developed Sonoran croesote bush scrub." DEIS p. C.2-29. In addition, "[g]rading would directly affect wildlife and other special status species by removal of shrubs and herbaceous vegetation, resulting in loss and fragmentation of cover, breeding, and foraging habitat." DEIS p. C.2-29.

The habitat fragmentation, loss of connectivity for terrestrial wildlife, and introduction of predators and invasive weed species associated with the proposed project in the proposed location are contrary to an effective climate change adaptation strategy that the agencies also claim to support. Siting the proposed project in the proposed location impacting major washend occupied habitat of imperied species could undermine a meaningful climate change adaptation strategy with a poorly executed climate change mitigation strategy. The way to maintain healthy, vibrant ecosystems is not to fragment them and reduce their biodiversity.

If BLM rejects an alternative from consideration, it must explain why a particular option in oft feasible and was therefore eliminated from further consideration. 40 C F.R. § 1502.14(a). The courts will scrutinize this explanation to ensure that the reasons given are adequately supported by the record. See Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, 813-15 (9th Cir. 1999); Idaho Conserv. League, 956 F.2d at 1522 (while agencies can use criteria to determine which options to fully evaluate, those criteria are subject to judicial review); Citizens for a Better Heuderson. 768 F.2d at 1057.

02-17

Here, BLM so narrowly construed the project purpose and need (and ignored the requirements for NEPA analysis of a plan amendment) that the DEIS did not consider an adequate range of alternatives to the proposed project.

The alternatives analysis is inadequate even with the inclusion of an alternative that would avoid all "primary" streams (Drainage Avoidance #1) and a smaller 300 MW project for which there is existing transmission capacity (Drainage Avoidance #2). At least one alternative should be considered that both avoids all primary streams and is limited to the 300 MW for which there is existing transmission capacity. At least one additional 300 MW alternative should be considered which would both be sized for the existing transmission and avoid both "primary" and "secondary" streams on site. This would also allow the project proponent to learn how and whether the technology will perform as expected at this scale.

The inclusion of two "no action" alternatives, while interesting, is also confusing and appears to be based on a misinterpretation of the governing plans. The second no action alternative states that it would not approve the ROW and "make the area unavailable for future solar development." This alternative is not a true "no action" alternative because it would require a CDCA plan amendment.

The document also includes other alternatives that were stated as being "Site Alternatives Evaluated only under CEQA" these include off-site alternatives. The document also eliminated from consideration a distributed renewable energy alternative. The BLM should have also looked alternative siting on previously degraded lands such as nearby farmlands, distributed solar alternatives, and other alternatives that could avoid impacts of the proposed project as well as impacts of the associated transmission lines and substations. In addition, as discussed above, the BLM should have looked at alternatives for construction and operations that would reduce GHG emissions including from SF6 and off-sets for those emissions.

The BLM failed to consider any off-site alternative that would significantly reduce the impacts to water resources and water quality, as well as biological resources including the flat-tailed homed lizard and its occupied habitat, Peninsular bighorn sheep, and other special status species including rare plants. Because such alternatives are feasible, on this basis and other the range of alternatives is inadequate. The Center urges the BLM to revise the DEIS to adequately address a range of feasible alternatives and other issues detailed above and then to re-circulate a revised or supplemental DEIS for public comment.

In addition, in order to meet the DOE's purpose and need states that: "The two principal goals of the loan guarantee program are to encourage commercial use in the United States of new or significantly improved energy-related technologies and to achieve substantial environmental benefits. The purpose and need for action by DOE is to comply with their mandate under EPAct by selecting eligible projects that meet the goals of the Act." Assuming for the sake of argument alone that these are proper project objectives, the DEIS should have considered alternatives that would provide funding to other types of projects. Such alternatives could include, for example, conservation measures that both avoid and reduce energy use within high-energy use load-centers including the Los Angeles and San Diego areas.

Alternative measures could include funding community projects for training and new windows for older buildings and new or improved technologies for accomplishing these important goals. For example, air conditioning creates the largest demand for energy during peak times and there already exist methods to reduce the energy use from air conditioning but implementation has lagged well behind technology. Conservation and efficiency measures are an excellent and quick way of reducing demand in both the short- and long-term and reduce the need for additional power sources. In addition, many of the existing conservation and efficiency measures can provide immediate jobs and training in high population areas with significant unemployment (particularly among low skilled workers and youth).

02-41

The existence of these and other feasible but unexplored alternatives shows that the BLM's analysis of alternatives in the DEIS is inadequate.

Project Alternatives: In addition to properly defining the purpose and need of an agency action, agencies must consider a range of reasonable alternatives to the agency action in the EIS. Ser 42 U.S.C. § 4352(2)(E). The range of alternatives is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. NEPA requires BLM to "rigorously explore and objectively evaluate" a range of alternatives to proposed federal actions." Ser 40 C.F.R. § 1502.14(a) and 1508.25(c). The purpose of this requirement is "to insist that no major federal project should be undertaken without intense consideration of other more ecologically sound courses of action, including shelving the entire project, or of accomplishing the same result by entirely different means. "Environmental Definer Fund r. Caps of Engineers, 492 F.2d 1123, 1135 (5th Cir. 1974); see also Mathow Valley Citizens Council r. Regional Forester, 833 F.2d 810 (9th Cir. 1987), rev'd on other grounds, 490 U.S. 332 (1989) (agency must consider alternative sites for a project).

We are pleased that several alternatives are considered and analyzed by the California Energy Commission (CEC) staff under the standards of the California Environmental Quality Act. We are particularly pleased that the CEC considered alternatives that entail the use of degraded private land, and two smaller-sized projects within the proposed project boundary. Unfortunately, the private land alternative was dismissed by BLM because the applicant is unlikely to secure project permits in time to receive federal government assistance for project development pursuant to the American Recovery and Reinvest Act of 2009. Dismissal of a private land alternative is unfortunate because it would very likely result in far fewer environmental impacts to significant cultural and biological resources found on the public land alternative that was proposed by the applicant.

BLM appears to have severely limited consideration of what constitutes a reasonable alternative by rejecting those involving private lands. We are pleased the CEC staff have identified and analyzed private land alternatives as a means of avoiding and minimizing the impacts of the project to sensitive resources, both biological and cultural. We are pleased, however, that BLM has determined that three public land alternatives, all of which would result in reduction in biological resources and ephemeral wash impacts, are reasonable and are addressed in the SA/DEIS. Two of these alternatives were recommended by the USACE. We are pleased the USACE has identified two alternatives that would significantly reduce impacts to jurisdictional waters of the U.S. that discharge into the Salton Sea, namely the New and Alamo Rivers.

Recommendation: BLM should reconsider and include private land alternatives found to be feasible by the CEC staff as reasonable under NEPA. While we understand BLM has no jurisdiction over the see of private lands, by automatically dismissing all such alternatives as "unreasonable" (SA/DEIS at B.2-1), BLM appears to be acting arbitrarily. BLM has a duty to work jointly with the CEC staff in considering all potentially viable alternatives that would avoid or minimize significant impacts to public land resources and values. NEPA regulations require inclusion of reasonable alternatives not within the jurisdiction of the lead agency. See 40 C.F.R. § 1502.14(c).

The fast track project sites were chosen without the benefit of sting entena developed either by desert activists, environmental organizations, scientists and others, are Renewable Stinig Criteria for California Desert Conservation Area, attached to June 29, 2009 letter referred to above, or by the Bureau. The Bureau in fact has yet to develop any stinig guidance that would help field staff, developers and others identify appropriate sites – i.e., those with relatively low resource values and fewer resource conflicts. Moreover, the projects themselves were designated by Interior and the BLM as fast track projects without consideration of potential environmental issues. And, equally important, the timetable established for review of these projects did not take into account their scale, the agency's lack of experience even the technologies involved, and the agency's lack of experience permitting these kinds of projects.

Regardless of the outcome of the environmental review process for this or any other fast track project, we urge the BLM and the Interior Department to acknowledge publicly the deficiencies of the current process and to commit publicly to improving it. More specifically, we urge both entities to affirm that neither the current process, nor any of the project sites, nor any of the environmental documents, establish any legal or procedural precedents for future decision-making, siting or environmental review. We make this urgent recommendation notwithstanding the fact that this particular project appears to be proposed for an appropriate site and the accompanying DEIS represents an improvement in several respects over other such documents.

The SES Solar Two Project. The proposed project site appears to have potential for developing large scale solar energy with fewer impacts to sensitive resources than some other areas with high solar potential being considered for such development by the BLM. Site characteristics that are conducive to solar development include the presence of disturbed acreage, "approximately 1,039 acres of dirt and off highway rehicle (OHV) roads on BLM administered land" see SES Solar Two Project CEC-BLM SA/DEIS at C.2-1. In addition, there are "a rall line, transmission line and buildings in the study area" id.C.2.11. Another characteristic conducive to solar development is the existing transmission capacity that exists to support the first 300 MW of the project without any upgrades, id. ES-2. The site is also served by existing road access from Interstate 8, id. ES-5, although miles of new roads are contemplated as part of the project proposal.

Equally important, the lands subject to this Right of Way (ROW) application appear to be of comparatively lower natural resource values than some of the other ROW applications currently being considered for ARRA funding: the site includes no critical habitat for any listed species, and implicates no Area of Critical Environmental Concern (ACEC) designated by the BLM. Also, no desert tortoise, a federally endangered species, were found on the site, id. ES-21, unlike other ARRA project sites such as Brightsource's Ivanpah project and Solar Millennium's Ridgecrest project which support sizable populations of this endangered species. See Ivanpah Solar Electric Generating System CEC-BLM SA/DEIS at 6.2-29 and Ridgecrest Solar Power Project CEC-BLM SA/DEIS 5.3-1 (Solar Millennium's Ridgecrest project is no longer on the ARRA "fast track" list). While the above characteristics render the site more appropriate than some other locations for solar development, we do still have concerns about project impacts and the draft EIS document.

D-52

04-2

The Yuha Desert, where the Project is to be located, is a pristine but extraordinarily sensitive landscape. Damage to it from this Project is likely to be irreversible. "Implementation of this [P]roject will forever change the landscape of this area," and also lead to "the permanent destruction of hundreds of cultural resources. ........ The environmental devastation that this Project will cause is permanent, but the Project's benefits are only temporary.\(^1\) Nonetheless, the California Energy Commission ("CEC") and United States Bureau of Land Management ("BLM") are rushing through critical environmental reviews and omitting essential information for the sake of the Project applicant's arbitrary timetables. An applicant's supposed time constraints are not a recognized exception to the requirements of either the California Environmental Quality Act ("CEQA") or the National Environmental Policy Act ("NEPA"). It is crucial that a complete and thorugh inquiry into the Project's impacts be made before the CEC and BLM commit themselves to allowing inverveible environmental damage.

The SA/DEIS fails to comply with CEQA and NEPA in seven distinct ways. First, it omits essential information and, as a result, fails as an informational document. Second, the SA/DEIS unlawfully defers the formulation of various studies and mitigation measures. Third, the assessment of the Project's environmental impacts is inadequate. Significant impacts are deemed insignificant and impacts that can be mitigated are mistakenly found to be unavoidable. Fourth, significant unstudied changes have been made to the Project since the SA/DEIS release, and significant new information is planned to be added to the SA/DEIS at a future date, so the SA/DEIS must be recirculated and an additional public comment period provided. Fifth, the discussion of Alternatives is inadequate insofar as BLM declined to evaluate Site Alternatives on the sole basis that they are inconsistent with the applicant spurpose and need. Sixth, the SA/DEIS unlawfully segments the Project by failing to consider the impacts of the related Sunrise Powerlink project. Seventh, the Project applicant now proposes to satisfy the Project's water needs with well water, but such use of that water would violate the federal Safe Drinking Water Act because the underlying aquifer has been designated a "sole source aquifer" by the United States Environmental Protection Agency.

BLM failed to consider the three site alternatives under NEFA because "none would accomplish the purpose and need for the proposed action." SA/DEIS p. B.2-2. However, BLM's statement of purpose and need for the SA/DEIS is too narrowly drawn. As the Ninth Circuit has held, although an agency has discretion to define the purpose and need of a project, it cannot use "urreasonably narrow" terms to define a project's objective. City of Carmel-By-The-Sea v. United States Dep't. of Transp., 123 F.3d 1142, 1155 (9th Cir.1997). Otherwise, "the EIS would become a foreordained formality." Priends of Southeast's Future v. Morrison, 153 F.3d 1059, 1056 (9th Cir.1998), (quoting Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 196 (D.C.Cir.1991), cert. denied, 502 U.S. 994, 112 S.Ct. 616, 116 L.Ed.2d 638 (1991)).

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"[T]he Department of Interior has promulgated no regulations emphasizing the primacy of private interests. The DOI... regulation, 40 C.F.R. § 1502.13, merely requires that an EIS "briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." National Parks & Conservation Ass'n v. Bureau of Land Management 587 F.36 735, (2009) as modified by 2010 Daily Journal D.A.R. 7271, at 7277. As the Ninth Circuit noted:

DOI's NEPA handbook explains that the "purpose and need statement for an externally generated action must describe the BLM purpose and need, not an applicant's or external proponent's purpose and need. "Department of Interior, Bureau of Land Management, National Environmental Policy Act Handbook 35, (citing 40 C.F.R. § 1502.13) (emphasis added), available at http://www.blm.gov/pgdata/tet/mediall/blm/wo/Information. Resources. Management/policy/blm, Dandbook Par.24487.File.dat/h1790-1-2008-1.pdf (citing 40 C.F.R. § 1502.13) (emphasis added). "The applicant's purpose and need may provide useful background information, but this description must not be confused with the BLM purpose and need for action that will dictate the range of alternatives...." / d.

National Parks & Conservation Ass'n v. Bureau of Land Management, supra, 2010 D.J. at p. 7280 n. 9.

Instead, however, the SA/DEIS statement of BLM's purpose and need is "to respond to the SES application under Title V of FLMPA for a ROW grant to construct, operate and decommission a solar thermal facility and associated infrastructure in compliance with FLPMA, BLM ROW regulations, and other applicable federal laws." SA/DEIS p. B.2-11. For this reason, BLM has declined to examine any off-site alternatives, despite its duty to comply with NEPA. SA/DEIS p. B.2-2. As the Energy Policy Act, and related Secretarial and Executive Orders direct BLM to "encourage the development of environmentally responsible renewable energy" while complying with existing environmental laws, its purpose and need statement need not be so narrowly drawn as to preclude the consideration of alternative locations. To do so reflects the needs of the Project applicant, not the needs of BLM, in violation of NEPA.

BLM additionally failed to consider the three site alternatives under NEPA on the grounds such alternatives were "unreasonable" because they did not fall within the BLM's jurisdiction. SA/DEIS p. B.2-19. However, NEPA itself does not declare such alternatives unreasonable.

Indeed, "(a)n agency may not reject a reasonable alternative because it is 'not within the jurisdiction of the lead agency." 40 C.F.R. § 1502.14(c); see also Muckleshoot Indian Tribe, 177 F.3d at 814. An agency's refusal to consider an alternative that would require some action beyond that of its congressional authorization is counter to NEPA's intent to provide options for both agencies and

06-13

O6-14

rage 15

Congress." National Wildlife Federation v. National Marine Fisheries Service, 235 F.Supp.2d 1143, 1154 (W.D. Wash. 2002).

BLM's determination to narrow its purpose and need to preclude the analysis of alternative sites, and to avoid analysis of offsite alternatives because they are outside of its jurisdiction, renders the SADEIS deficient

## C. Relocation to an Alternative Site Would Reduce the Project's Impacts.

Both the Agricultural Lands Alternative and the Mesquite Lake Alternative are environmentally superior to the proposed Project's environmentally sensitive location within the undisturbed desert environment, and washes and habitat for protected species. BLM and the Energy Commission should adopt either of these alternatives in lieu of the Project alternative, to avoid the Project's significant impacts, including its degradation of visual resources, cultural resources and artifacts, and habitat for bishorn sheer.

The Mesquite Lake Alternative site is an environmentally superior location to the proposed Project. Selecting the Mesquite Lake Alternative would reduce the Project's impacts on visual resources (SA/DEIS p. B.2-43) and on Native American cultural resources. SA/DEIS p. B.2-31. Likewise, selecting the Agricultural Lands Alternative would reduce the project's impact on Native American cultural resources. SA/DEIS p. B.2-58. Accordingly, one of these two alternatives should be adopted.

## VII. THE DEIS ALTERNATIVES ANALYSIS IS INADEQUATE

The alternatives analysis is the heart of the environmental impact statement. <sup>150</sup> A DEIS should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options. <sup>140</sup> Agencies shall rigorously explore and objectively evaluate all reasonable alternatives.

O9-50

Alternatives should include reasonable alternatives not within the jurisdiction of the lead agency.

The DEIS failed to consider two reasonable alternatives that should have been analyzed to provide a basis for the public to meaningfully evaluate the impacts of the Project: 1) an alternative that restricts all Project components from the Juan Bautista de Anza trail corridor, as established by Congress; and 2) an offsite alternative that would not impact any waters of the United States on the Project site.

O9-50

Rather than studying these two reasonable alternatives that are necessary in order to reduce two of the Project's significant adverse impacts, the DEIS only analyzed three alternatives other than the proposed project: a 300 MW alternative and two alternatives that would reduce but not eliminate adverse effects to waters of the United States. These alternatives are insufficient because "the existence of a viable but unexamined alternative renders an environmental impact statement inadequate." Morongo Band of Mission Indians v. FAA (1998) 161 F.3d 569, 575. The DEIS must examine the following alternatives.

## Eddie and Donna,

I met with the Hearing Officer on this issue yesterday (staff does not see the Committee's schedule before you do) and explained the concerns Jim and I have on compiling, reading, and responding to comments after the 90-day comment period and then completing and filing the Supplemental Staff Assessment/Final Environmental Impact Statement.

P1-1

The publication dates will be determined by staff's completion of the work, and though driven by the directives we receive

from the Commission, providing a complete analysis is the primary focus.

The technical authors. Jim, and myself are not the decision-makers on this project and our job is to inform them and the public of the project's potential impacts and guide the project through the public process. We will continue to focus on the environmental issues and leave the pressures from the state or federal administrations to those up the food chain in our respective agencies.

>>> Edie Harmon <desertharmon@gmail.com> 3/2/2010 8:36 PM >>> Helio Donna and Chris,

Honestly, Chris, I did not discuss my concerns about the shortened times between comment periods, cultural resource materials after the SADEIS, the two weeks between the end of the comment period on the DEIS and the availability of the SA/FEIS, and the date for the BLM ROD with Donna before I left a message on your phone. And yes, I am among those who submitted comments and concerns on the Seeley Wastewater issue.

It seems highly improbable that comments, substantive or otherwise on the Solar 2 SA/DEIS will be considered and/or responded to in the final documents given the short time and the fact that it is likely that the most substantive comments will arrive the date of the comment deadline. The comment deadline ends 5-27-2010, with the Final EIS to be out 6-15-2010 according to the posted Third Committee Schedule (Revised) on the CEC website. And with the scheduling of the BLM ROD, one wonders why the public should take the process seriously, unless there is a possibility that the issue of cultural resource impacts and sacred geography is already leading the agencies toward a decision to deny the project at the proposed location.

P1-1 Are these shortened timeframes allowing the agencies to comply with the provisions of CEQA and NEPA? I am certain that staffs at both BLM and CEC are already pushed to the limits in trying to deal with so many projects at once. It certainly seems inappropriate to be dealing with the water issue and cultural resources issues AFTER the SAEIS reviews. Indeed, the timing scheduling seems inconsistent with everything I have seen in more than 30 years of commenting on CECA and NEPA documents in Imperial County. It seems that the importance of the issues should mandate that the public be given access to the completed essential review analysis prior to completing environmental review rather than after. The San Diego Smart Energy 2020 report by Bill Powers points that there is truly no urgent reason to rush to a decision on the project, unless that decision is to deny the project because it is not needed and because impacts to cultural resources and the cultural resources lands are unacceptable.

Remember that the proposed project site was Identified in the 1980 BLM DEIS for the CDCA Plan as the "Plaster City ACEC" because of the significance of cultural resources and known cremation sites. Each of the Plan Alternatives Maps depicts the Plaster City ACEC. Yes, some of us do have a collection of old BLM documents and they can be a treasurehouse of interesting historical information!

Thank you for considering the variety of collective concerns about the opportunity and consideration of public input on the SA/DFIS for Solar 2

Edie Harmon

desertharmon@gmail.com 619-729-7178

On Tue. Mar 2, 2010 at 5:04 PM, <donnatisdale@hughes.net> wrote;

- > Hello Chris.
- > I just got the following notice on SES Solar Two\*
- > \*\*The BLM and Energy Commission staff are currently preparing an > addendum to the Staff Assessment and Draft Environmental Impact
- > Statement
- (SA/DFIS)
- > to address comments received on the Mitigated Negative Declaration
- > (MND) prepared by the Seeley County Water District for the expansion
- > of the
- > Wastewater Treatment Facility, and the lack of adoption of the MND by
- > the Seeley County Water District Board of Directors. The analysis in
- > this addendum will be incorporated in the Supplemental SA/Final EIS

P10-6

be  > published following the 90-day comment period on the SA/DEIS. *  > Shouldn't this information be included for public comment before the  > SA/EEIS? Why didn't the Water District Board adopt the MND? Did they  give  > clue  > reason. Is this information available on the project website. If so, where?	P1-1
> The latest schedule also shows the Final Decision hearing on August 25—the same date given for the BLM's ROD? This means the hearing is > meaningless because the decision will already be made!	
> What the heck is going on?	

Finally, the Sun Catcher technology is wholly untested on a large scale. The maintenance of 30,000 incividual Stirling engines will require an army of attendants to keep them in working order. Also, no one knows how these Sun Catchers will hold up to the extreme winds and potentially strong earthquakes that occur in the area. For instance, did Tessera determine how the recent 7.2 macritude earthquake near Mexicall would have affected 30,000 Sun Catchers? Would all of them have fallen over, or just half of them? Would all of them have lost portions of their mirrors, or just half of them?

This type of technology may be appropriate and functional on a small scale, but the sheer number of engines that would be built for this project leaves many questions unanswered.

6. The proposed IV project has problems with its technology which is the main reason that it has taken so long to move it through the approval process. There were six of these Stirling Solar machines at Sandia Labs in New Mexico for years and years and now recently only 60 units in operation in Arizona. Are we sure that these machines work? Building a few machines at a lab is not the same as mass production. All that has happened so far is prototypes. You can't permanently destroy 6,500 acres of our public lands for an unproven product still in the R&D stages of development! You can't rush this decision based on unproven technology.

D-58

#### Alternatives

- 45. SA/DEIS fails as an informational document because the Alternatives discussion really only considers variations in the size and placement of SunCatcher units on the site under NEPA of at off site locations under CEQA in addition to the NP Action/No Project Alternative. See Sections starting with B.2.6. There was no consideration of alternative measures or technologies recommended by the public as measures which could accomplish the energy and GHG emissions goals of the proposed project. CEQA and NEPA provide opportunities for considering alternative measures, solutions, or locations to solve a problem even if they are not part of the project as described by a project applicant.
- 46. Here Alternatives analysis other than the No Action alternatives seem to be driven by the profit motives of the project applicant. The SA/DEIS Alternatives discussion is from the perspective of applicant financial motives, when there must be some analysis of what the same amount of taxpayer funding could accomplish if the same amount of funding were to be made available for community based solutions which would reduce electrical demands on the system.
- 47. Please add an analysis of public generated recommendations for alternatives to the proposed industrial scale privatization of public lands to solve the energy and emissions problems.
- 48. And please add to the analysis the savings in fossil fuels that will accrue when the speed limit is reduced to 55 mph as under President Carter. Surely there is abundant data indicating the success of that effort in the past.

**Response:** The responses to the questions and comments related to the project alternatives are provided in the following sections.

## D.4.2.1 Scope and Range of Alternatives Considered

For an adequate NEPA analysis, for "...the alternatives to be considered, the emphasis is on what is 'reasonable' rather than on whether the proponent or applicant likes or is itself capable of implementing an alternative." (United States Bureau of Land Management [BLM] National Environmental Policy Act Handbook H-1790-1 (January 30, 2008)). In order to establish the reasonable range of alternatives to be considered, the defined project purpose and need functions as the first and most important screening tool. For the project, the applicant's purpose is to implement a profitable solar energy-providing enterprise. The BLM's purpose for the project is to specifically respond to Imperial Valley Solar, LLC's application under Title V of the Federal Land Policy and Management Act (FLPMA; 43 United States Code [USC] 1701) for a right-of-way (ROW) grant to construct, operate, maintain, and decommission a solar energy generation facility on public lands in compliance with FLPMA, BLM right-of-way regulations, and other applicable Federal laws. The United States Army Corps of Engineers (Corps) and the California Energy Commission (CEC) also have agency specific purpose and need statements for the project.

P11-25

For BLM, the range of alternatives is based on the applicant's proposed project, alternatives that would reduce or avoid adverse impacts of the applicant's project, appropriate No Action Alternatives. The alternatives considered by the BLM must involve an action on the part of the BLM. For this project, those actions are to approve or disapprove a ROW grant for the use of the project site for the proposed project and to amend or not amend the California Desert Conservation Area Plan (CDCA Plan, 1980 as amended) to allow or not allow solar on the IVS project site. Some of the comments on the SA/DEIS suggested the BLM should be proactive about the placement of these types of facilities on BLM jurisdictional lands and that lands outside the California desert should be considered for the IVS project. However, the BLM's role in managing its lands includes facilitating land uses on those lands while appropriately balancing and responding to multiple interests concerning Federal mandates, collaborating agencies' directives', and BLM's own interests. As a result, the alternatives considered in the SA/DEIS and the FEIS focus on alternatives which would require an action by the BLM and which respond to the specific application for a ROW grant received by the BLM for the IVS project.

## D.4.2.2 Agency Preferred Alternative

The BLM must identify the Agency Preferred Alternative no later than as part of the Record of Decision (ROD) and potentially as early as in the DEIS. The BLM did not identify an Agency Preferred Alternative in the SA/DEIS but has identified the Agency Preferred Alternative in the FEIS. The 709 MW Alternative is the Agency Preferred Alternative. The 709 MW Alternative is the IVS project (750 MW) with modifications. Those modifications are specifically to remove SunCatchers from within certain drainages on the site and to move the Main Services Complex out of drainages. The Agency Preferred Alternative also includes four applicant proposed modifications that are also included in all the other Build Alternatives. Those modifications, which were incorporated in the Build Alternatives after the SA/DEIS was published, were minor realignments of the transmission line and the water line, changes in the hydrogen storage system on the site, and use of an alternative water source (a private off site water well) during construction and initial operations. The Agency Preferred Alternative, the other Build Alternatives with the applicant-proposed modifications, and the No Action Alternatives evaluated in the FEIS are described in detail in Chapter 2, Alternatives Including the Proposed Action, in the FEIS

## D.4.2.3 Alternatives Evaluation and Rejection

The SA/DEIS included a substantial discussion regarding alternatives which were considered but not carried forward for detailed evaluation in the SA/DEIS. The alternatives considered and

the reasons why they were not carried forward are described in detail in Section 2.8.3, Other Alternatives Considered but Eliminated from Detailed Analysis, in the FEIS and are described briefly below.

#### **Alternative Sites**

Several comments on the SA/DEIS suggested that alternative sites for the project be considered, in particular sites that are closer to urban areas. The SA/DEIS considered three alternative sites for the project: the Mesquite Lake, Agricultural Lands and South of Highway 98 Alternatives. Section 2.3.8 details why those alternative sites were not carried forward for detailed analysis. In addition, it is important to note that those three sites are not on BLM managed lands and, therefore, would require no action by the BLM. As a result, the BLM did not consider those three sites in the SA/DEIS or in the FEIS under the requirements of NEPA. Those sites were assessed in the SA/DEIS under the requirements of CEQA only.

Additional sites closer to urban areas or on previously disturbed lands were not considered in the SA/DEIS because the consideration of the three alternative sites described above was adequate in identifying and considering alternative sites. Alternative sites on other BLM managed lands were not considered because the BLM is responding to the specific individual application for the specific parcel identified in the applicant's ROW grant application. In addition, there are a very large number of other renewable energy projects for which applications for the use of BLM-managed lands have been submitted to the BLM. As a result, other BLM-managed lands in the general area of the project site are already subject to consideration of applications for other projects and, therefore, would not be considered by the BLM to be available for alternative projects until those applications are considered and either approved or denied by the BLM. Finally, many of the areas that have previously been disturbed or are closer to urban areas are not within the jurisdiction of the BLM and, therefore, would require no action by the BLM.

## **Alternative Strategies**

Two alternative energy production strategies were suggested in the comment letters: promoting energy conservation through education and fossil fuel consumption reduction through lower speed limits. While both of these could result in a decrease in demand for electricity and fossil fuels, the reduction amount is unpredictable because both strategies are based on assumptions of behavioral change. As a result, there is no way to quantify these strategies. These strategies are also outside the jurisdiction and authority of the BLM. Therefore, because these strategies do not meet the BLM's purpose and need regarding renewable energy on BLM-managed lands

and they are outside the jurisdiction and authority of the BLM, they are not considered viable alternatives to the project.

Several comments noted that the SunCatcher technology proposed for the IVS project is a relatively new technology. New technologies are allowed in renewable energy projects on BLM managed lands. The demand for renewable energy across the globe is requiring advancements in the field. Therefore, the IVS project would not be the only renewable energy project benefitting from recent technological advancements.

## **Suggested Alternatives**

Other alternatives were suggested in the comment letters. One proposed avoidance of the Juan Bautista de Anza National Historic Trail (Anza Trail) corridor and the other proposed a jurisdictional waters avoidance alternative. The Anza Trail corridor is extensive across southern California and its actual alignment is uncertain in many areas, including on and in the vicinity of the IVS project site. To entirely avoid the inferred alignment of the Anza Trail Corridor, the IVS project would likely need to be moved completely away from the project vicinity. The 300 MW Alternative evaluated in the SA/DEIS and the FEIS moves the project features further away from the inferred alignment of the Anza Trail Corridor on the IVS project site. Several alternatives already considered in the SA/DEIS avoid many of the major and minor drainages on the project site. These include the 300 MW Alternative, Drainage Avoidance #1 Alternative, and Drainage Avoidance #2 Alternative. In addition, all three No Action Alternatives evaluated in the SA/DEIS and the FEIS would avoid impacts to the inferred alignment of the Anza Trail corridor and all the drainages on the site.

It should be noted that the Agency Preferred Alternative includes avoidance of many of the major drainages on the project site.

Another suggestion was to consider distributed solar technology. However, that technology was already considered in the SA/DEIS and FEIS, but was rejected as shown in this text from the SA/DEIS: "The conclusion of this section is that, while it will very likely be possible to achieve 750 MW of distributed solar energy over the coming years, the very limited numbers of existing facilities make it difficult to conclude with confidence that it will happen within the timeframe required for the IVS project. As a result, this technology is eliminated from detailed analysis in this SA/DEIS." In addition, the distributed solar technology is dependent on many variables outside the control and authority of the BLM. Therefore, given the directive for the BLM to implement substantial renewable energy projects on BLM managed lands by 2015, this technology alternative was not carried forward for detailed analysis in the SA/DEIS and the FEIS.

In June 2009, the United States Department of Energy (DOE) Solar Energy Technologies Program initiated a Solar Vision Study (refer to Chapter 9, References, in the FEIS). That study is guided by the following goals:

- To evaluate the technical, economic, and environmental feasibility of meeting or offsetting 10 to 20 percent of electricity demand from solar energy technologies by 2030
- To identify the technology research, development, demonstration, and deployment and policy options necessary to achieve the first goal

During the past year, the study was conducted through a collaborative process, engaging a broad mix of perspectives from the private sector, universities, national laboratories, not-for-profits, and state and local interests. The primary technologies examined in that report are solar photovoltaics, concentrating solar power, and solar heating and cooling technologies.

Exploring high solar penetration cases for the United States grid will help identify synergies, constraints, and operational issues that analyses of incremental changes may miss. It also allows exploration of the resource, technology, materials, finance, and other factors that may constrain large-scale deployment of solar technologies in the longer-term future, especially beyond 2030. In addition, the *Solar Vision Study* is providing information for inclusion in and is being conducted in coordination with the DOE's *Renewable Electricity Futures (REF) Study*. The REF Study is exploring the potential for meeting 60 to 80 percent of the grid's power requirements by 2050 through a mix of renewable energy technologies. That study, which will be finalized soon after anticipated release of the Imperial Valley FEIS, underscores the need for both distributed and centralized solar power generation facilities in the United States in order to achieve the identified renewable energy goals.

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## D.4.3 Purpose and Need

These comments requested that the purpose and need be broadened and that additional alternatives be identified based on the broader purpose and need.

Comments: F2-38, O3-2, O4-8, O6-2, P11-21, and P11-23.

## Project Purpose and Need

EPA believes the discussion in the DEIS regarding the purpose and need for the Project should be expanded. As we indicated in our scoping comments, the purpose of the proposed action is typically the specific objectives of the activity, while the need for the proposed action may be to eliminate a broader underlying problem or take advantage of an opportunity.

Building upon the comment above, the Purpose and Need for a project should be broad enough to spur identification of the full breadth of a reasonable range of alternatives, regardless of what the future findings of an alternatives analysis may be. It is critical that the Purpose and Need should not prescribe a solution, nor should it imply a predetermined solution, such as a specific type of renewable energy plant in a specific location that generates a specific amount of

power. The Purpose and Need should focus on the underlying problems to address (e.g., lack of capacity to serve an increasing demand for energy, or the need to develop sufficient renewable energy to meet State renewable portfolio standards). A solar power plant may be an integral component of the potential solution to the problems identified in a Purpose and Need discussion; however, the Purpose and Need should allow for the analysis of a full scope of alternatives, including off-site locations, environmentally preferable on-site alternatives or other modes of renewable energy generation.

For NEPA purposes, the DEIS eliminates all off-site and alternative technology alternatives from consideration. The analysis of potential on-site alternatives includes the proposed action, two reduced drainage alternatives and a single reduced size alternative. Such a narrow range of alternatives is, in part, influenced by the BLM's narrowly defined Purpose. According to the DEIS, BLM's purpose and need for the proposed action is to approve, approve with modifications, or deny issuance of a Right-of-Way (ROW) grant for the Project (at pg. A-12). EPA understands the rationale in considering the "federal" Purpose and Need for the Project; bowever, EPA recommends that the FEIS further characterize the "project" Purpose and Need for the Need as part of BLM's statement of purpose. BLM's purpose statement should be broad enough to allow for a reasonable range of alternatives, including environmentally preferable alternatives. It is our understanding that BLM has considered other potential areas for future renewable energy development, including other BLM sites, private lands and previously disturbed sites; however, BLM's purpose statement appears too narrowly focused on the potential Project site, and this unduly limits the alternatives are for further analysis in the DEIS.

## Recommendation:

The FEIS should reflect a broader purpose and need statement that allows for a full
evaluation of other alternatives, including off-site locations and other environmentally
preferable on-site alternatives.

Additionally, as indicated in our scoping comments, this section of the FEIS should discuss the proposed Project in the context of the larger energy market that this Project would serve. While the DEIS appears to indicate the need for the proposed Project has its basis in Federal orders and laws that require government agencies to evaluate energy generation projects and facilitate the development of renewable energy sources, EPA does not believe the current Purpose and Need section fully describes the specific Federal, State, and individual utility power provider renewable energy targets, timelines, and underlying needs to which BLM is responding. EPA believes this context is imperative for decision makers and the public to have, in light of the large number of renewable energy projects moving forward.

Presumably, some number of renewable energy facilities will be constructed pursuant to the joint Department of Energy (DOE)BLM Programmatic Solar DEIS effort as well as the Desert Renewable Energy Conservation Plan (DRECP) process. It would be helpful to know the likely locations, construction timing, and generation capacities of such facilities relative to the proposed Project.

## Recommendations:

- Fully describe the specific Federal and State renewable energy targets, timelines, and
  underlying needs to which BLM is responding, and explain how the Project meets
  those needs in the context of the many renewable energy project applications in the
  Desert Southwest and California
- To the extent practicable, the FEIS should discuss how many of the total renewable energy applications received by BLM are likely to proceed pursuant to the joint Department of Energy (DDE)/BLM Programmatic Solar DEIS effort and the Desert Renewable Energy Conservation Plan (DRECP) process, and the level of energy production those applications represent.

 Further describe the utility purchases of power and provide a description of how the power would be bought, sold, and used so that the reader can better evaluate the tradeoffs between resource protection and power generation.

#### I. National Environmental Policy Act (NEPA)

Purpose and Need: In specifying their EIS obligations under the National Environmental Policy Act (NEPA), federal agencies must "specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." 40 C.F.R. § 1502.13. Courts "have interpreted NEPA to preclude agencies from defining the objectives of their actions in terms so unreasonably narrow that they can be accomplished by only one alternative (i.e. the applicant's proposed project)." Colorado Environmental Coadition v. Dombeck, 185 F.3d 1162, 1165, 1174 (10th Cir. 1999), at 1174 (citing Simmons v. United States Corps of Eng'rs, 120 F.3d 664, 669 (7th Cir. 1997)).

BLM Purpose and Need: According to the DEIS, the stated purpose and need for the proposed project is to "...respond to the SES Solar II, LLC's application under Title V of the Federal Land Policy and Management Act (FLPMA) (43 U.S.C. § 1761) for a right-of- way grant to construct, operate and decommission a solar thermal generation facility and associated infrastructure in accordance with FLPMA, BLM right-of-way regulations, and other applicable federal laws. (SA/DEIS at A-12)." The purpose is also to "use BLM's authority under the Energy Policy Act "...to approve at least 10,000 MW of renewable energy on public lands by 2015." (SA/DEIS at A-12).

Recommendation: Instead of the current purpose and need statement focusing on the BLM responding to a right of way application under Tirle V of FLPMA, we recommend that the purpose and need statement focus on the need to generate and greater amounts of electrical energy from renewable energy sources so that dependency on carbon-based fuels is reduced, and to contribute to the requirement to generate certain minimum amounts of renewable energy to comply with State and federal standards. By providing a broader statement of purpose and need, BLM ensures the NEPA documents are legally defensive documents.

By so radically narrowing the scope of the project's purpose, BLM has impermissibly constricted the range of alternatives considered. See Carmel by the Sea v. U.S. DOT, 123 F.3d 1142, 1155 (9th Cir. 1995). Further, BLM has misinterpreted the intent of Congress in the Energy Policy Act in stating that the law mandates BLM to approve at least 10,000 MW of renewable energy from public lands by 2015. (SA/DEIS at A-13). Rather, the Act encourages the Secretary of the Interior to approve a minimum of 10,000 MW of renewable energy from the public lands by the year 2015, which is correctly stated desewhere in the document (see SA/DEIS at B.2-10).

Department of Energy Purpose and Need: According to the DFIS, the stated purpose and need for proposed action is "... to comply with its mandate under the EPAct by selecting eligible projects (potentially suitable for funding support) that meet the goals of the EP Act." (SA/DEIS at A-12). U.S. Army Corps of Engineers (USACE) Purpose and Need: USACE uses two purpose and need statements to identify and analyze a reasonable range of alternatives under Section 40(4b)(1) of the Clean Water Act. These include the basic project propose and the overall project purpose. The basic project purpose is producing energy. The USACE determines whether or not and to what degree the proposed project would affect wetlands or waters of the United States subject to provisions of the Clean Water Act. (DEIS at A-13).

03-2

DEIS Elements: Our concerns with the draft environmental review document itself relate to three key elements: the purpose and need statement, the alternatives considered, and the cumulative impact analysis, all of which were problems with the Bureau's first solar DEIS, the Ivanpah DEIS, and are showing incremental improvement with subsequent DEIS documents including the Solar Two DEIS. We are also concerned about how the BLM will ensure that the new proposal(s) and new information that have come to light since the DEIS was published will be fully analyzed and made available to the public.

The purpose and need statement for this project is slightly broader than the one in the Ivanpah draft, but it remains too narrow. Ivanpah's purpose and need was explicitly limited to a stark dichotomy: "approve" or "deny" the company's application for a solar project and, as the result, the document addressed only the "no action" option and the "proposed project." A supplemental draft with a revised purpose and need and additional alternatives was issued in an attempt to remedy this egregious approach to "the heart" of the process established by the National Environmental Policy Act (NEPA).

The draft states that the BLM's purpose and need is "to respond to" the company's ROW application, id. A-12. The BLM should avoid both this mindset as well as too narrow a statement of purpose and need in order to help ensure that its EISs are legally defensible documents. In place of the statement that was used here, our organizations urge the adoption of the following to achieve these goals:

The purpose of the proposed action is to "facilitate environmentally responsible commercial development of solar energy projects" consistent with the statutory authorities and policies applicable to the Bureau of Land Management, including those providing for contributions towards achieving the renewable energy and economic stimulus and renewable energy development objectives under the Energy Policy Act of 2005 (EPAct), the American Recovery and Re-Investment Act, and Presidential and Secretarial orders.

04-8

The need for this action is to implement Federal policies, orders and laws that mandate or encourage the development of renewable energy sources, including the Energy Policy Act of 2005, which requires the Department of the Interior to seek to approve at least 10,000 MW of non-hydropower renewable energy on public lands by 2015, and the Federal policy goal of producing 10% of the nation's electricity from renewable resources by 2010 and 25% by 2025; to enable effective implementation of the economic incentives for qualifying projects intended by the American Recovery and Reinvestment Act; and to support the State of California's renewable energy and climate change objectives, consistent with BLM's mandates and responsibilities.

This kind of purpose and need statement would clearly satisfy applicable legal requirements, see, e.g., National Parks Conservation Assn v. BLM, 586 F.3<sup>rd</sup> 735 (9<sup>th</sup> Cir. 2009), and thus help ensure that environmentally acceptable projects – which this project may end up being –will not only be permitted but will also be built without unnecessary delays.

The DEIS for the Stiding Two projects shows marked improvement over the Ivanpah DEIS in its treatment of alternatives – six are presented, including three build alternatives and three no project approval alternatives id.ES-8. The alternatives proposed by the Army Corps of Engineers are included in the DEIS and must be given full consideration id. ES-8. We commend the BLM for including these options which are key to establishing a real range of alternatives as well as to providing readers a fuller understanding of the tradeoffs inherent in the other larger "action" alternatives.

The Yuha Desert, where the Project is to be located, is a pristine but extraordinarily sensitive landscape. Damage to it from this Project is likely to be irreversible. "Implementation of this [P] roject will forever change the landscape of this area," and also lead to "the permanent destruction of hundreds of cultural resources. ..." The environmental devastation that this Project will cause is permanent, but the Project's benefits are only temporary. Nonetheless, the California Energy Commission ("CEC") and United States Bureau of Land Management ("BLM") are rushing through critical environmental reviews and omitting essential information for the sake of the Project applicant's arbitrary timetables. An applicant's supposed time constraints are not a recognized exception to the requirements of either the California Environmental Quality Act ("CEQA") or the National Environmental Policy Act ("NEPA"). It is crucial that a complete and thorough inquiry into the Project's impacts be made before the CEC and BLM commit themselves to allowing irreversible environmental damage.

The SA/DEIS fails to comply with CEQA and NEPA in seven distinct ways. First, it omits essential information and, as a result, fails as an informational document. Second, the SA/DEIS unlawfully defers the formulation of various studies and mitigation measures. Third, the assessment of the Project's environmental impacts is inadequate. Significant impacts are deemed insignificant and impacts that can be mitigated are mistakenly found to be unavoidable. Fourth, significant nustudied changes have been made to the Project since the SA/DEIS release, and significant new information is planned to be added to the SA/DEIS at a future date, so the SA/DEIS must be recirculated and an additional public comment period provided. Fifth, the discussion of Alternatives is inadequate insofar as BLM declined to evaluate Site Alternatives on the sole basis that they are inconsistent with the applicant is purpose and need. Sixth, the SA/DEIS unlawfully segments the Project by failing to consider the impacts of the related Sunise Powerlink project. Seventh, the Project applicant now proposes to satisfy the Project's water needs with well water, but such use of that water would violate the federal Safe Drinking Water Act because the underlying aquifer has been designated a "sole source aquifer" by the United States Environmental Protection Agency.

34. For example, if a goal is reducing GHG, what amount of GHG reduction could be achieved by reducing the speed limit back to 55 mph, increasing the energy efficiency of existing housing stock and using distributed rooftop PV rather than using all the fuel for manufacturing, transportation and construction of the materials needed for the SunCatcher technology and needed new transmission lines? How would those alternatives, either alone or combined make a contribution to reduction of toxic air contaminants?

P11-21

06-2

37. Why not be innovative and creative and try the new and improved technologies to insulate homes, change behaviors and lifestyles be driving less, and using small portable 6 inch personal fans rather than air conditioning and sweaters and jerseys instead of heating homes and buildings in Southern CA, what about retrofitting windows on public places that would be energy efficient

P11-23

Response: The responses to the questions and comments related to the project purpose and need are provided in the following sections.

# D.4.3.1 Broader Purpose and Need

These comments requested that the project purpose be substantially expanded to address more broad and less specific purposes in order to allow for consideration of a broader range of

alternatives. The purpose and need for the project provided Chapter 1.0, introduction and Purpose and Need, in the Final Environmental impact Statement (FEIS) is based on two key considerations:

- The potential action the BLM could or would take on the specific project, the Imperial Valley Solar (IVS) project
- The response of the BLM in meeting specific directives regarding the implementation of renewable energy projects on Federally managed lands

Clearly, the primary action that BLM is considering is related to responding to a specific right-ofway (ROW) grant application from the project applicant to construct and operate a specific solar project on a specific site managed by the BLM. As a result, the BLM determined that a key purpose of this project was to determine whether to approve, approve with conditions, or deny that ROW application for the 750 megawatt (MW) IVS project. In addition, the BLM considered several other Build Alternatives on the same site and three No Action Alternatives as described in detail in Chapter 2.0, Alternatives Including the Proposed Action, in the FEIS.

The suggestion that the project purpose should be expanded to "...focus on the need to generate...greater amounts of electrical energy from renewable energy sources so that dependency on carbon based fuels is reduced..." is outside the purview of the BLM. The need for increased energy from renewable sources is not the responsibility of the BLM. However, the BLM can respond, within the context of specific directives under which it operates, to those needs by considering ROW grant applications for projects that would produce renewable energy on Federally managed lands. As a result, the BLM purpose for the IVS project responds in part to specific directives related to renewable energy production:

- Executive Order 13212 (May 18, 2001) which mandates that Federal agencies act
  expediently and in a manner consistent with applicable laws to increase the
  "...production and transmission of energy in a safe and environmentally sound
  manner."
- The Energy Policy Act, which requires the Department of the Interior (BLM's parent agency) to approve at least 10,000 MW of renewable energy on public lands by 2015.
- Secretarial Order 3285 (March 11, 2009) which "...establishes the development of renewable energy as a priority for the Department of the Interior..."

As noted above, these directives give the BLM the authority to act expediently in increasing the production of renewable energy within the bounds of its other authorities regarding the

management of Federal lands. The BLM is not in the business of developing and operating energy production facilities; its responsibilities are to consider and grant (or deny) ROW to any qualified individual, business, or government entity and to direct and control the use of rights-of-way on public land in a manner that:

- Protects the natural resources associated with public lands and adjacent lands, whether private or administered by a government entity;
- · Prevents unnecessary or undue degradation to public lands;
- Promotes the use of rights-of-way in common considering engineering and technological compatibility, national security, and land use plans; and
- Coordinates, to the fullest extent possible, all BLM actions under the regulations in this part with state and local governments, interested individuals and appropriate quasi-public entities.

As directed by Secretarial Order 3285, the BLM has identified renewable energy projects on Federally managed lands as a priority throughout the lands it manages. As a result, the BLM is considering ROW grants for various renewable energy projects throughout California and other western states. Each of these projects is considered by the BLM on its own merits and with consideration of the impacts of each specific project on a specific site. Therefore, the purpose and need for each project, including the IVS project, are specific to each project within the broader scope of the directives prioritizing renewable energy development on Federally managed lands. Further, the FEIS does consider other possible energy projects in the cumulative impacts analyses provided in Chapter 4.0, Environmental Consequences.

The BLM believes that the purpose and need for the IVS project, as discussed in Section 1.0 in the FEIS, is consistent with the directives described above and the requirements of Title V of the Federal Land Policy and Management Act (FLPMA; 43 United States Code [USC] 1701) and satisfies the requirements of the National Environmental Policy Act (NEPA). Therefore, the BLM purpose and need for this project were not revised in response to these comments.

One comment related to whether the reduction of greenhouse gases (GHGs) is a goal and, if so, what the effects of other energy conservation or generation options (speed limit reductions, use of rooftop photovoltaic) would be related to GHG. The reduction of greenhouse gas is not a specific goal or purpose of the project. However, GHG would be reduced as a result of the Build Alternatives as discussed in Section 4.4, Climate Change, in the FEIS. However, that analysis does not compare the reductions of GHG under the IVS project with possible reductions from other energy conservation generation options as that type of analysis is outside the scope of the

analysis in the FEIS for the IVS project. While the reduction of GHG is a benefit of the IVS project, the BLM is not charged with any responsibility for the reduction of GHG in its directives related to renewable energy projects, including the IVS project.

# D.4.3.2 Increase the Range of Alternatives Consistent with a Broader Purpose and Need

As discussed in detail in Chapter 2.0 in the FEIS, the following Build Alternatives, which all meet the BLM purpose and need, were evaluated in detail in the FEIS:

- IVS Project: 750 MW Alternative
- 709 MW Alternative: Agency Preferred Alternative
- 300 MW Alternative
- Drainage Avoidance #1 Alternative
- Drainage Avoidance #2 Alternative

In addition, the following No Action Alternatives, which do not meet the BLM purpose and need, were evaluated in defail in the FFIS:

- No Action Alternative: No ROW Grant and No CDCA Plan Amendment
- No Action Alternative: No ROW Grant and Amend the CDCA Plan for No Solar
- No Action Alternative: No ROW Grant and Amend the CDCA Plan for Other Solar

Chapter 2.0 of the FEIS also discusses alternative sites that were considered by the California Energy Commission (CEC) under the requirements of the California Environmental Quality Act (CEQA) only because those sites are not on BLM land and would not require any action by the BLM. A large number of other alternatives was also considered but was not carried forward for detailed evaluation in the FEIS as explained in Chapter 2.0.

Refer also to Chapter 2.0, Alternatives Including the Proposed Action, in the FEIS for additional discussion of alternatives considered in the FEIS and why other alternatives were either not considered or were considered but not carried forward for detailed analyses in the FEIS.

# D.4.4 Cumulative Impacts

The comments regarding the cumulative impacts analyses discussed several topics, as addressed below.

Comments: F1-2, F1-7, F1-15, F2-1, F2-6, F2-20, F2-25, F2-34, L2-5, O2-2, O2-3, O2-11, O2-12, O2-22, O2-37, O3-4, O4-9, O4-10, O4-11, O6-2, O6-11, and O8-17.

NPS is also very concerned about the cumulative effects that this and other planned renewable energy projects will have on the California desert, and specifically, other National Park units. The combined effect of these projects, proposed on vast tracts of relatively undisturbed open land, will result in fundamental changes in how the desert is experienced by the public. The cumulative effects of these projects will also result in substantial impacts to a wide range of environmental resources in the California desert.

F1-2

### B.3 - Cumulative Scenario

Section B.3, Cumulative Scenario, identifies many other past, present, or future projects that could impact the Anza NHT, and the California desert as a whole. Several of the wind projects identified in the EIS, proposed west of the site near Ocotillo, would be visible from the Anza NHT (Wind Zero, Ocotillo Express, TelStar Energies). The analysis does not identify projects underway or anticipated in Arizona near the Anza NHT alignment that could add to cumulative impacts (i.e. cultural, visual, noise, recreational) and further degrade the integrity of the trail. As a result, the cumulative impact analysis needs to be expanded in the final EIS to include such projects and specifically address cumulative impacts to the Anza NHT corridor.

F1-7

Nonetheless, the cumulative analysis makes clear that the implementation of this and other energy projects would result in significant impacts to many environmental resources in the . California desert and elsewhere in the west. The result will be profound changes to the visitor's experience in these areas. NPS is very concerned about the implications of these long term changes. To ensure that projects are sited in appropriate locations using appropriate technologies to avoid impacts to our nation's natural and cultural heritage, it is imperative that landscape level analyses be conducted to fully evaluate the implications of the widespread deployment of renewable energy projects, and their associated support facilities, on the public lands. We recommend that the final EIS include a section discussing this aspect of cumulative impacts and efforts underway by the Burearu to address landscape level concerns.

F1-7

With regard to the visual impacts from cumulative projects, the Draft EIS raises an important concern about the potential for other energy projects to concentrate in the area once it has been degraded by this project. The additional impacts of future projects would be considered less severe once area is disturbed by the proposed project:

By substantially lowering the prevailing visual quality of its local viewshed, the Yuha Desert/western Salton Trough, the project could have the indirect effect of encouraging additional subsequent development of similar character in the area. Because the relatively intact existing landscape would appear highly compromised after introduction of the SES Solar Two Project, the incremental additional impact of other future projects could appear to be less significant than if they were occurring in the current, intact landscape without the project. (Draft EIS, page C.13-22)

The analysis also raises a very significant concern regarding the potential for cumulative energy projects in the California desert to fundamentally change the character of this vast open landscape.

... the potential for profound widespread cumulative impacts to scenic resources within the southern California desert is clear. These cumulative impacts could include a substantial decline in the overall number and extent of scenically intact, undisturbed desert landscapes, and a substantially more urbanized character in the overall southern California desert landscape. (Draft Els D. C.13-36 and 37)

The scale of the cumulative impacts described above points to the need for federal land managers to comprehensively plan and designate where energy projects should be concentrated and where they should be avoided. Relying on the current application-driven process for reviewing and approving energy projects continues the piecemeal approach to development that degrades the country's remaining open lands. The Solar Energy PEIS is a step in the right direction and provides a comprehensive approach to assessing and mitigating the impacts of solar projects, but stronger policies or legislation is needed to direct and concentrate energy projects into the most appropriate areas. This is a major public policy issue that needs to be addressed upfront prior to giving authorization for the stiting of projects.

F1-15

The U.S. Environmental Protection Agency (EPA) has reviewed the Joint Draft Environmental Impact Statement (DEIS) and Staff Assessment for the Imperial Valley Solar Project (Project). Our review and comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) Regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act (CAA).

I am directing this comment letter to you because of our concerns over the Project's environmental impacts, insufficient evaluation of potentially environmentally preferable alternatives, and implications for other renewable energy projects that have been proposed on Bureau of Land Management (BLM) lands throughout our Region. In light of these concerns, and our recent adverse rating of BLM's Amargosa Solar Millenium Project in Nevada, (comments submitted on May 17, 2010), I would like to meet with you and BLM's Nevada State Director Ron Wenker in the next 30 to discuss these issues further. I believe it is important for us to coordinate now to avoid unnecessary delays in the NEPA process as we all work toward the nation's renewable energy goals.

EPA supports increasing the development of renewable energy resources in an expeditious and well planned manner. Using renewable energy resources such as solar power can help the nation meet its energy requirements while reducing greenhouse gas emissions. While renewable energy facilities offer many environmental benefits, appropriate siting and design of such facilities is of paramount importance if the nation is to make optimum use of its renewable energy resources without unnecessarily depleting or degrading its water resources, wildlife habitats, recreational opportunities, and scenic vistas.

In addition to the above, we are concerned about the Project's potential impacts on groundwater, We note that, on May 10<sup>th</sup> the Project proponent released a Supplement to the Imperial Valley Solar Application for Certification to BLM and the California Energy Commission (CEC). That supplement includes analyses of project design modifications, and proposes, as an alternative water supply for the Project, a sole source aquifer that may already be over-appropriated. An analysis of this newly proposed water source and the potential

Finally, the DEIS provides no assessment of the cumulative impacts on waters of the United States that are likely to result from the proposed Project and other proposed energyrelated projects in the area. In short, the Project, as proposed, does not comply with EPA's Guidelines, nor with the Corps' and EPA's regulations governing mitigation under Section 404 of the CWA.

#### Recommendations:

- Discuss the steps that will be taken to avoid and minimize impacts to waters of the
  United States. To the extent any aquatic features that could be affected by the Project
  are determined not to constitute waters of the United States, EPA recommends that
  the FEIS characterize the functions of such features and discuss potential mitigation,
- Include in the FEIS a mitigation plan for unavoidable impacts to waters of the United States, as required by Corps and EPA regulations.

F2-1

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### Water Supply and Groundwater Resources

The DEIS proposes to supply water for the Project via a new 12-mile water line from the Seeley Wastewater Treatment Plant (SWWTP). The DEIS indicates that a Mitigated Negative Declaration (MMD) had been prepared for the necessary improvements to the SWWTP to increase its capacity (at pg. C.7-28). The recent lack of adoption of the MMD by the County Water District Board of Directors, as described on page 1-1 of the May 10<sup>8</sup> Supplement to the Imperial Valley Solar Application for Certification (Supplement), has raised concerns as to the viability of the SWWTP as a water source for the Project. The FEIS should include an update on the recent decision and a full evaluation of the environmental impacts from the proposed SWWTP upgrades if it is still considered to be a viable water source for the proposed Project.

The DEIS indicates there is currently no backup water supply for the Project (at pg. C.7-40). The DEIS also indicates no groundwater would be used by the Project and, therefore, the effect on groundwater infiltration would be negligible (at pg. C.7-3). On May 10<sup>th</sup>, the Supplement was submitted to BLM and CEC which includes changes to the Project description and new analyses of project design modifications, and proposes a sole source aquifer as an alternative water supply for the Project. In light of the fundamental changes to the Project, the Supplement should be fully integrated into the FEIS and the FEIS should adequately respond to stakeholder comments.

#### Recommendations:

- Include an update on the proposed upgrades to the SWWTP and include a full
  evaluation of the environmental impacts from the proposed SWWTP.
- Fully integrate the recent Supplement into the FEIS.

#### Cumulative Impacts Analysis

According to the DEIS, a total of 72 projects and 649,440 acres of solar energy production and 61 projects and 433,721 acres of wind energy production are currently proposed for development in the California desert lands (at pg. C. 4-40). While we acknowledge the identification of the reasonably foreseeable projects mentioned in the DEIS and the qualitative discussion of cumulative impacts in each resource chapter, the DEIS does not fully assess and quantify cumulative impacts associated with the Project, and does not adequately link the Project's effects to the health of the affected resources.

F2-25

The FEIS and all future environmental analyses related to renewable energy, transmission, and development projects in the region should provide a comprehensive description of the associated elements of all foresceable future actions. Specifically, the FEIS should disclose to the public the cumulative impacts that are anticipated when the impacts of the Project are considered along with those of all of the energy projects and development projects in the Project vicinity. 'Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR Part 1508.7). Incorporating this thorough analysis as part of this Project will help provide the context necessary to evaluate project related impacts into the future. These analyses should be summarized as part of the Cumulative Impacts Chapter, and should address the indirect and cumulative impacts associated with multiple large-scale solar projects proposed in the Desert Southwest on various resources, including: habitat, endangered species, groundwater, aquatic species, and air quality.

For example, the methodology used for the cumulative impacts air quality analysis appears to be quite robust; however, the results are not presented nor described. The methodology describes consideration of numerous projects in close proximity to the proposed project, but limits the scope of the cumulative impact analysis to only those projects occurring within 6 miles of the proposed project site. The scope of the cumulative impact analysis is limited to focus on 'localized' cumulative impacts; however, in an area in nonattainment for multiple criteria pollutants, including PM<sub>10</sub>, the cumulative impacts analysis should cast a wider net. Without further information about projects in the region, it is difficult to conduct a thorough cumulative impacts analysis. The FEIS should include a more extensive analysis that defines the parameters of the analysis and the reasons for the establishment of those parameters.

Additionally, the DEIS presents a brief cumulative impacts discussion in the Soil and Water Resources chapter but does not provide detailed information nor in-depth analyses of potential impacts for any resource, including groundwater (at pg. C.7-14). Although the DEIS notes that no groundwater will be used by the Project, in light of the May 10th Supplement, the comulative impacts analysis should be updated to account for the newly proposed water supply from the sole source aquifer. The FEIS should consider what will happen to groundwater levels if pumping continues at existing rates and address what might happen if there is an incremental increase associated with pumping due to the influx of large-scale solar projects in the area.

Finally, as an indirect result of providing additional power, it can be anticipated that this project will allow for development and population growth to occur in those areas that receive the generated electricity.

#### Recommendations:

- Update the list of reasonably foreseeable projects used in the air quality analysis to include all projects that may have impacts that may cumulatively affect the region ability to attain air quality goals.
- Adequately analyze the cumulative impacts, including further habitat fragmentation, to species, such as the FTHL, from the reasonably foresceable energy projects and developments identified.

- Estimate the annual water use associated with the reasonably, foreseeable large-scale solar projects proposed in the Project's vicinity. BLM should be able to obtain this information, upon request, from proponents of viable projects.
- EPA recommends the FEIS clearly demonstrate whether there is sufficient
  groundwater for the lifetime of this Project and other reasonably foreseeable projects
  in the study area.
- EPA recommends the cumulative impacts analysis for groundwater include a discussion of the potential effect of future climate change on the proposed Project and groundwater development.
- EPA recommends that the ground water monitoring program be clearly defined and
  include a mitigation section for water resources. The ground water monitoring plan
  should describe the location of the monitoring wells and discuss contingency actions
  in the event of detection of contamination. The FEIS, and ultimately the Record of
  Decision (ROD), should include a commitment to the monitoring program and
  funding for the program.
- Address what measures would be taken, and by whom, should groundwater resources
  in the basin become overextended to the point that further curtailment is necessary
  due to, for example, additional growth, the influx of large-scale solar projects,
  drought, and the utilization of existing or pending water rights in the basin.
- Describe the reasonably foreseeable future land use and associated impacts that will
  result from the additional power supply. The document should provide an estimate of
  the amount of growth, likely location, and the biological and environmental resources
  at risk.
  - 4) It is the County's understanding, based on the CEC hearing on May 25, 2010, that IVSP proposes to use water from the Westwind's water well in Ocotillo for a temporary water source during the construction phase, with permanent water from the Seeley County Water District. If a water supply is proposed from the Ocotillo "Westwind's" water well, proof of compliance with the February 23, 2005 Imperial County Planning Commission's approved conditions of well registration will be necessary along with an executed contract for water prior to use of the water well by IVSP. The conditions limit the well water extraction to 40 acre feet a year, it is strongly recommended that the CEC take into account the on-site water needs for the Westwind's parcel and historical residential users in its permitting of the IVSP to use this off-site water source. Also, it needs to be noted that the project description does not denote Westwind as a water supply source.

As proposed, the proposed project would cover approximately 6.185 acres approximately 9.7 square miles) of Sonoran desert scrub that is prime habitat for the federally proposed threatened flat-tailed horned lizard ("FTHL") including foraging habitat for the federally and state listed endangered Peninsular bighorn sheep. Unfortunately, the DEIS for the proposed plan amendment and right-of-way application fails to provide adequate identification

02-2

and analysis of the significant impacts to the endangered Peninsular bighorn sheep, the flat-tailed horned lizard, rare plants, and other biological resources, fails to adequately address the significant cumulative and growth inducing impacts of the project, and lacks consideration of a reasonable range of alternatives. In addition, BLM has failed to fully examine the impact of the proposed plan amendment to the California Desert Conservation Act Plan ("CDCA Plan") along with other similar proposed plan amendments that which would result in industrial sites sprawling across the California Desert within habitat that should be protected to achieve the goals of the bioregional plan as a whole.

02-2

Nonetheless, even the inadequate information provided in the DEIS shows that the proposed plan amendment and right-of-way application should be denied because the proposed project will result in significant impacts to a breeding population of flat-tailed homed lizards, which are proposed to be listed under the Endangered Species Act ("ESA"). In addition to direct impacts to the flat-tailed horned lizard, the proposed project is in an area that links the northern and southern populations and management areas for this imperiled species – areas which were set aside for the conservation and recovery of the species. Although the DEIS acknowledges that this site includes documented foraging area for the federally and state endangered Peninsular bighorn sheep (DEIS at C.2-39), the DEIS improperly ignored potential impacts to the bighorn from the loss of this foraging area. Alternative siting, which the BLM failed to adequately address in the DEIS, could significantly reduce the impacts to both of these species, their occupied habitat, and other special status species including potentially rare plants. The Center urges the BLM to revise the DEIS to adequately address these and other issues detailed below and re-circulate the DEIS or a supplemental DEIS for public comment.

02-3

In the sections that follow, the Center provides detailed comments on the ways in which the DEIS fails to adequately identify and analyze many of the impacts that could result from the proposed project, including but not limited to: impacts to biological resources, growth inducing impacts alternatives and cumulative impacts. In addition, if undertaken as proposed, this industrial project is inconsistent with local planning and zoning laws, the Endangered Species Act ("ESA"), the Federal Land Policy Management Act ("FLPMA"), the California Desert Conservation Act ("CDCA"), and other laws, ordinances, regulations and standards.

## C. Fails to Adequately Address Other Ongoing Planning Efforts

The DEIS fails to adequately address the proposed project in the context of other connected projects (including multiple renewable energy projects, substations and additions transmission lines) and the ongoing PEIS planning process for solar development in six westem states undertaken by BLM and DOE which does not identify this area as a proposed solar energy study area. Direct, indirect and cumulative impacts of the proposed project in conjunction with others will lead to sprawl development in the area and undermine the planning for renewable energy industrial zones that BLM has undertaken.

The cumulative impacts to species in this area from sprawl development, as opposed to well planned and sited development, are not adequately addressed in the planning context. Nor is the conversion of the western Imperial Valley into a highly industrialized area (with additional wind and large scale solar plants, accompanying substations and power lines, and glare and heat islands) adequately addressed in the environmental review. In fact, it is clear that piecemeal project approvals in this area and others may undermine the solar programmatic planning by federal agencies for the western states. This critical issue regarding planning on public lands is not adequately addressed in the DEIS which only mentions the PEIS process particularly with regards to the "south of Highway 98 alternative". DEIS at B.2-74 to 84. The BLM does not analyze how the PEIS could be affected by piecemeal approval of this and other projects. Such analysis after the fact is not consistent with the planning requirements of FLPMA or, indeed, any rational land use planning principles.

02-12

#### 1 Flat-tailed Horned Lizard

Declines in populations of and habitat for the flat-tailed horned lizard were noted for decades resulting in a proposed listing of the species in 1993. Several legal challenges have resulted in the U.S. Fish and Wildlife Service currently reviewing data to determine if the species needs federal Endangered Species Act protection. Threats to the flat-tailed horned lizard are abundant from its small geographic range, it specialized and highly fragmented habitat, its sensitivity to anthropogenic effects, its narrow breadth of diet (almost exclusively harvester ants), and the lowest rates of reproduction of all known horned lizards. All of these factors highlight the potential risk of local and regional extinctions for this species.

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In the more than 15 years since this listing was first proposed in 1993, the threats to the flat-tailed homed lizard have only increased. Clearly the lizard is still in decline, and the Flat-tailed Homed Lizard Management Areas, the voluntary conservation agreement that has been in place since 1997 and the Rangewide Management Strategy (2003) are not sufficient to protect the survival of the species or contribute to its recovery. Moreover, threats to the species are increasing.

Damage to habitat from off-road vehicles has continued in all flat-tailed horned lizard areas, including the Yuha Desert, Coachella Valley, West and East Mesas, near the Algodones Dunes, and near Yum a sa well as in other flat-tailed horned lizard habitat. There is increasing ORV use of designated routes as well as increased route proliferation in many areas both within the FTHL Management areas and in lizard habitat outside of these areas. These ongoing and increased impacts remain one of the greatest threats to species survival. Off-road vehicle use and route proliferation both causes direct loss of habitat and increasingly fragments remaining habitats. Habitat fragmentation is a significant factor in decreasing flat-tailed horned lizard survival and may preclude recovery in many areas. A study of flat-tailed horned lizards and other species within a conservation areas found that edge effects from roads had a significant impact on flat-tailed horned lizard populations up to 150 m from roads (as well as impacts from increased predation). Barrows et al. (2006), see also Barrows and Allen (2009) (discussion of habitat loss and high degree of fragmentation in remaining habitats).

Several renewable energy projects are proposed within flat-tailed horned lizard habitat including the proposed project here which includes thousands of acres of flat-tailed horned lizard habitat and the Ocotillo Express wind project proposal which would cover over 6,000 acres, including many acres of flat-tailed horned lizard habitat. This project could also further fragment the remaining habitat for the species and could block gene flow between the West Mesa and Yuha Desert area populations. In addition, there are at least another five pending right of way applications for both solar and wind projects covering more than 20,000 acres in areas that may include significant lizard habitat some of them adjacent to the management areas. Each of the proposed energy projects will require a new gen-tie power lines that will likely impact lizard habitat and many may also require new substations and other infrastructure that may directly affect lizard habitat. Moreover, these large-scale, single-use projects will displace other multiple uses on public lands and increase the pressure on the FTHL Management areas and other lizard habitat from ORV use.

Loss of habitat due to urban sprawl development and farming was the largest historic threat to the flat-tailed horned lizards. One new sprawl development proposal that may impact flat-tailed horned lizards and their habitat in Imperial County is the Travertine Point which proposes 12,000 housing units on nearly 5,000 acres adjacent to the Salton Sea <sup>10</sup> In addition, the renewable energy projects, as discussed above, represent another kind of sprawl development that threatens the survival of the species through direct loss of habitat as well as increasing fragmentation of habitat. For this reason, the Center and other conservation groups have advocated for sting the new renewable energy projects on previously degraded sites in the desert habitats (including fallowed farmlands) and alternative siting should have been more fully considered here.

The flat-tailed horned lizard has largely been extirpated from the Coachella Valley outside of existing conservation areas and the little remaining habitat in Coachella Valley continues to be lost to sprawl development. Problems with small reserve size, invasive weeds, loss of sand sources, and boundary effects suggest the current Coachella Valley reserve will not

ensure the survival of the flat-tailed homed lizard in the Coachella Valley. Barrows et al. (2006) noted the significant "sink" effect along the boundary areas and cautioned "Without immigration from the preserve core, flat-tailed homed lizards may not be able to sustain populations in the boundary region." This same concern regarding boundary effects arises for the management areas where routes already fragment the management areas and where additional development is proposed on the borders. This project could similarly limit the effectiveness of the FTHL Management areas by fragmenting the habitat and cutting off connectivity between areas.

The Sunrise Powerlink powerline project would also directly impact lizard habitat. This project, if built, will also increase the likelihood that other proposed energy projects will be built in areas that will directly affect the lizard including the proposed project and other such as the Ocotillo wind project and the associated gen-tie lines and substations. Powerlines also provide perches for raptors which then prey on the flat-tailed homed lizards, putting further unnatural predation pressures on this declining species (Barrows, pers, communication).

On-going and increasing impacts to flat-tailed horned lizard habitat near the US-Mexican border in CA and AZ are also of concern particularly off-road vehicle use by border patrol agents (and others). Border Patrol 'tire drags' of dirt roads in lizard habitat are also a problem and continue to kill or injure lizards. The spread of non-native mustards and other invasive plants may also threaten flat-tailed horned lizard habitat viability. Even if exotic plant species do not directly change the habitat character or decrease food sources, many of these invasive weed plants can support and spread fire that could kill or injure lizards in an area where fire would naturally be an extremely rare occurrence (Brooks et al. 2004). The proposed project with its large hydrogen reserves and piping system would also greatly increase the likelihood of fire and the impacts to the lizard and other wildland resources should have been considered in the DEIS but were not.

Many of the existing and proposed development projects including the proposed project as well as ORV use will increase the likelihood of predation of flat-tailed horned lizards further diminishing their numbers and ability to survive. Barrows et al. (2006) found a significant increase predation in their study of boundary effects. Increased development provides new roosting and nesting sites for predators including for example shrikes and kestrels which are known predators of the flat-tailed horned lizard. It is well established that increases in subsidies from human activities which provide additional water sources and food/trash also increase other potential predators such as ravens.

The flat-tailed homed lizard as all other species, will be affected by climate change. The Service is well aware of the threats to species due to climate change and in turn the threats to biodiversity across in many diverse ecosystems. In its most recent 2007 report, the Intergovernmental Panel on Climate Change (IPCC) expressed in the strongest language possible its finding that global warming is occurring: "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level" (IPCC 2007: 30). The international scientific consensus of the IPCC is that most of the recent warming observed has been caused by human activities (IPCC 2007). The U.S. Global Change Research Program also stated that "global warming is unequivocal and primarily human-induced" (UCGCRP: 12) one

of the most troubling recent findings is that the concentration of atmospheric carbon dioxide, the biggest contributor to global warming, has been rapidly increasing throughout the 2000s and is generating stronger-than-expected and sooner-than-predicted climate forcing (Raupach et al. 2007).

The global average temperature has risen by approximately 0.74° C  $\pm$  0.18° C (1.33° F  $\pm$ 0.32° F) during the past 100 years (1906-2005) (Trenberth et al. 2007) in response to rapidly increasing greenhouse gas concentrations. Atmospheric concentration of carbon dioxide has increased by 36% since 1750 to a level that has not been exceeded during the past 650,000 years and likely not during the past 20 million years (Denman et al. 2007). The rate of increase in the atmospheric carbon dioxide concentration is accelerating, with especially rapid increases observed in the 2000s. The emissions growth rate rose from 1.1% per year from 1990-1999 to 3.5 % per year from 2000-2007 (McMullen and Jabbour 2009). The emissions growth rate since 2000 has even exceeded that of the most fossil-fuel intensive IPCC SRES emissions scenario, A1FI (McMullen and Jabbour 2009, Richardson et al. 2009). During the past 50 years, carbon dioxide sinks on land and in the oceans have become less efficient in absorbing atmospheric carbon dioxide, which is contributing to the observed rapid rise (Canadell et al. 2007). The atmospheric concentration of methane, another important greenhouse gas, has increased by about 150% since 1750, continues to increase, and has not been exceeded during the past 650,000 years (Forster et al. 2007). Similarly, the atmospheric concentration of nitrous oxide has increased by about 18% since 1750, continues to increase, and has not been exceeded during at least the last 2000 years (Forster et al. 2007). With atmospheric carbon dioxide at ~390 ppm and worldwide emissions continuing to increase, rapid and substantial reductions are clearly needed immediately.

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As scientific understanding of global warming has advanced, so too has the urgency of the warnings from scientists about the consequences of our greenhouse gas emissions for biodiversity loss. Significant and wide-ranging ecological impacts of climate change have been well-documented by thousands of peer-reviewed papers. These impacts include changes in distribution, phenology, physiology, demographic rates, abundance, and genetics (see Lovejoy and Hannah (2005), Parmesan (2006), Hartley et al. (2006) for a small sampling of comprehensive reviews). Studies that have forecast species extinction risk under projected climate conditions have predicted catastrophic species losses during this century. Under a midlevel emissions scenario, Thomas et al. (2004) predicted that climate change will commit 15-37% of species to extinction by 2050. The IPCC found that 20 to 30% of plant and animal species will face an increasingly high risk of extinction as global mean temperatures exceed 2 to 3°C above pre-industrial temperatures (Parry et al. 2007). If current carbon pollution trends continue, the IPCC estimated that climate change will threaten up to 70% of plant and animals with extinction by 2100 (Parry et al. 2007). Therefore, immediate reduction of greenhouse gas pollution is critical to slow global warming and ultimately stabilize the climate system before we commit a significant portion of the world's species to extinction.

Threats to the flat-tailed horned lizard from climate change are significant for several reasons. First, a recent study shows that desert areas may be some of the first affected by increasing temperature and that the changes may be more rapid in these ecosystems making adaptation more difficult. Second, the existing and likely increasing fragmentation of the

lizard's habitat by the proposed project and others will make any adaptation through movement across the landscape far more difficult. Thus, the flat-tailed horned lizard although adapted to hot desert environments may nonetheless be significantly impacted by climate change due to its loss of habitat and the constraints on adaptation.

While the FTHL Rangewide Management Strategy (2003) established Management Areas for the conservation and recovery of the flat-tailed horned lizard, it fails to include connectivity corridors that will help to ensure genetic viability of the core Management Areas. The proposed project site clearly supports significant populations of flat-tailed horned lizard – an estimated 2000 – 5000 animals or 0.32-0.81 lizards/acre which provides an important linkage between the adjacent management areas (Yuha and West Mesa). When last surveyed these two "conserved" areas provided only somewhat higher densities than those estimated at the proposed project site." Which also shows the importance of preserving the habitat here.

Impacts to the flat-tailed homed lizards and other affected species must be avoided where possible through a robust alternatives analysis and any remaining impacts should be minimized and mitigated. Unfortunately, the proposal to relocate flat-tailed horned lizards is not part of a comprehensive proposal but appears to be largely an experiment absent any scientific "controls" that may itself have significant impacts to this imperiled species. The DEIS fails to provide a draft of the relocation plan for public review thus undermining NEPA review. Relocation sites are not identified, nor is the impact to resident flat-tailed horned lizards at the relocation sites analyzed. An analysis of likely impacts from the relocation is particularly important based on data that indicates that food resources are a limiting factor in population numbers<sup>12</sup>. Relocating additional flat-tailed horned lizards into a habitat that is already sustaining its carrying capacity will be detrimental to the species

Furthermore, mechanisms need to be included to assure that any and all mitigation acquisitions will be conserved in perpetuity for the conservation of the flat-tailed horned lizard. If those acquisitions are within existing Management Areas, higher levels of protection than are currently in place for Management Areas need to be put in place. NEPA mandates consideration of the relevant environmental factors and environmental review of "[b]oth short- and long-term effects" in order to determine the significance of the project is impacts. 40 C.F.R. § 1508.27(a) (emphasis added). BLM has clearly failed to do so in this instance with respect to the impact to the flat-tailed horned lizard.

The cumulative scenario in the DEIS fails to adequately identify and analyze the scope of the cumulative impacts to various resources across appropriate scales for each impact. While the DEIS looks at the nearby projects to some extent it ignores other scales of analysis such as across the flat-tailed horned lizard range. For example, the DEIS fails to look at cumulative impacts to the biological resources in the CDCA as a whole from multiple proposed industrial scale projects particularly how sprawling industrial sites could fragment habitats and change the quality of the CDCA overall. In addition, the DEIS should have considered the cumulative impacts to the flat-tailed horned lizard both within Imperial County and the species as a whole including the Coachella Valley and Arizona which are both areas where its habitat has become extremely constricted. Each of these scales of analysis would likely reveal different information about the cumulative impacts of this project. As discussed above, the flat-tailed horned lizard is subject to numerous ongoing and proposed impacts from development including renewable energy development and from off-road vehicle use.

02-37

Because the identification of plant communities and species on site is unfinished and incomplete, the cumulative impacts are also therefore inadequate. Similarly, because impacts to the bighorn were ignored, cumulative impacts to this endangered species were also ignored.

The DEIS also fails to consider all reasonably foreseeable impacts in the context of the cumulative impacts analysis. See Native Ecosystems Council v. Dombek, et al, 304 F.3d 886 (9th Cir. 2002) (finding future timber sales and related forest road restriction amendments were "reasonably foreseeable cumulative impacts"). The DEIS also fails to provide the needed analysis of how the impacts might combine or synergistically interact to affect the environment in this valley or region. See Klamath-Siskiyon Wildlands Ctr. v. BLM, 387 F.3d 989, 995-96 (9th Cir. 2004).

Cumulative Impacts Analysis: Cumulative impact is defined as the impact on the environment which results from the incremental impacts of the action when added to other past, present, and reasonably foresceable future action regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking bakes over a period of time. 40 C.F.R. § 1508.7.

Although the SA/DEIS identifies a substantial number of existing and proposed land use activities that have and would add to the cumulative loss of significant cultural and biological resources, the depth of the analysis appears insufficient to establish a clear condition and trend with regard to how imperiled certain at-risk resources are in the region.

Cumulative impacts on species at risk and their habitats is particularly important for this proposed project. The Flat-tailed Horned Lizard, currently proposed for listing under the Endangered Species Act, is considered to occur throughout the project area, although its population size has not been precisely determined. Similarly, the Peninsular Bighorn Sheep, federally listed as Endangered and State-listed as Threatened, has been observed on-site on one occasion.

03-4

Recommendation. A cumulative effects analysis of the impact of the past, present and reasonably foreseeable activities that have and will adversely impact at-risk biological resources, such as the Flattailed Horned Lizard and the Peninsulae Bighorn Sheep, needs to be included. The cumulative impact analysis should reveal the condition and trend of these resources and whether or not the current situation is one in which additional impacts due to projects on public land would conform to BLM policy as expressed in Manuals 6500 (Wildlife Habitat Management) and 6840 (Special Status Species Management).

Cumulative Impacts: In order to propedly site renewable energy projects, it is essential that a cumulative impacts analysis be conducted to fully evaluate the implications of this type of development on public lands. There are several wind and transmission projects in the vicinity of the Solar Two power plant that will contribute to overall cumulative impacts to sensitive resources in this area. A list of existing and future foreseeable projects is included in the DEIS, id. B.3-7 to B.3-10. In addition, the DEIS utilizes qualitative information about these existing and foreseeable projects to develop estimates and model impacts on key topics such as air quality and biological resources. More quantitative information is highly desirable, to supplement this quantitative material.

04-9

Moreover, additional evaluation is needed to understand the cumulative impacts on recreational resources, specifically the Juan Bautista de Anza National Historic Trail, see National Park Service comments dated May 4, 2010 on the Proposed Imperial Valley Solar Project Draft ElS, pg. 3. A comprehensive cumulative impacts analysis including the evaluation of such information strengthens this document including associated mitigation measures and contributes to more informed decision-making.

04-10

In addition to the proposed solar and wind projects, the draft EIS identifies 8 mixed use residential and commercial development projects, the pedestrian border fence, continued growth of use of open OHV areas, and several other projects that will also contribute to cumulative impacts, id. B.3-10. While these projects are not being permitted by the Bureau, all reasonable efforts must be made to obtain information regarding their potential impacts and construction timing so that a full picture of cumulative impacts can be presented in the final EIS.

04-11

The Yuha Desert, where the Project is to be located, is a pristine but extraordinarily sensitive landscape. Damage to it from this Project is likely to be irreversible. "Implementation of this [Project will forever change the landscape of this area," and also lead to "the permanent destruction of hundreds of cultural resources...." The environmental devastation that this Project will cause is permanent, but the Project's benefits are only temporary. Nonetheless, the California Energy Commission ("CEC") and United States Bureau of Land Management ("BLM") are rushing through critical environmental reviews and omitting essential information for the sake of the Project applicant's arbitrary timetables. An applicant's supposed time constraints are not a recognized exception to the requirements of either the California Environmental Quality Act ("CEQA") or the National Environmental Policy Act ("NEPA"). It is crucial that a complete and thorough inquiry into the Project's impacts be made before the CEC and BLM commit themselves to allowing irreversible environmental damage.

O6-2

The SA/DEIS fails to comply with CEQA and NEPA in seven distinct ways. First, it omits essential information and, as a result, fails as an informational document. Second, the SA/DEIS unlawfully defers the formulation of various studies and mitigation measures. Third, the assessment of the Project's environmental impacts is inadequate. Significant impacts are deemed insignificant and impacts that can be mitigated are mistakenly found to be unavoidable. Founth, significant unstudied changes have been made to the Project since the SA/DEIS wavoidable. Founth, significant mustudied changes have been made to the Project since the SA/DEIS was and significant new information is planned to be added to the SA/DEIS and SA/DEIS was be recirculated and an additional public comment period provided. Fifth, the discussion of Alternatives is inadequate insofar as BIM declined to evaluate Site Alternatives on the sole basis that they are inconsistent with the applicant's purpose and need. Sixth, the SA/DEIS unlawfully segments the Project by failing to consider the impacts of the related Surrise Powerlink project. Seventh, the Project applicant now proposes to satisfy the Project's water needs with well water, but such use of that water would violate the federal Safe Drinking Water Act because the underlying aquifer has been designated a "sole source aquifer" by the United States Environmental Protection Agency.

Both NEPA and CEQA require agencies to consider the cumulative impacts of their actions. The Guidelines state that "[a]n EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable." Guidelines § 15130(a). NEPA similarly requires this discussion. 40 C.F.R. §§ 1508.7, 1508.27(b)(7). The Project will have numerous cumulative impacts that were not discussed.

First, the Project will have cumulative impacts on the PBHS, but the EIR fails to identify these impacts, perhaps due to a mistaken belief that the Project will have no significant impacts on the PBHS. Exhibit 400 to CURE opening testimony, p. 9; SA/DEIS, p. C.2-70 through 73 (cumulative impacts section solely analyzing impacts on FTHL and ignoring impacts on PBHS). The Project's impacts on the FTHL cannot be mitigated, as detailed above, and, accordingly, the SA/DEIS' conclusion based on this premise – that impacts to the FTHL are not cumulatively "considerable" or "significant" – is unfounded.

06-11

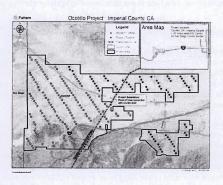
Second, the Project will have cumulative growth inducing impacts. The SA/DEIS concludes that no significant growth-inducing impacts will occur because the size of the Project's workforce is modest. SA/DEIS, p. C.10-8. It then concludes that there will be no cumulative impacts because again the workforce is modest and the cumulative projects will "have beneficial public impacts" such as higher taxes and lower unemployment. SA/DEIS, p. C.10-20. This conclusion is in direct conflict with CEQA, which directs that "it must not be assumed that growth in any area is necessarily beneficial... or of little significance to the environment." Guidelines § 15126.2(d). This conclusion also violates CEQA because it fails to consider the totality of the Project's cumulative growth-inducing impacts. The SA/DEIS only considers the growth-inducing impacts of other solar projects being considered in the area. SA/DEIS, p. C.10-20. Yet, as the SA/DEIS admits elsewhere, Project approval "could have the

indirect effect of encouraging additional subsequent development...[b] ceause the relatively intact existing landscape would appear highly compromised after introduction" of the Project. SA/DEIS, p. C.13-22. The SA/DEIS must attempt to quantify the growth inducing impacts of all other types of projects that are likely to spring up in the Yuha Desert after Project approval, because these impacts are "reasonably foresceable." Guidelines § 1535.

#### **Cumulative Impacts**

- . The cumulative impacts analyses for Solar Two / IV Solar is inadequate
- Industrial wind energy projects, and their related transmission infrastructure, proposed west of Solar Two, will result in direct, indirect, and cumulative impacts to Golden Eagles, other birds, bats, bighorn sheep, the flat tailed horned lizard, visual, cultural, and recreational resources, wildlife corridors and currently unfragmented habitat and foraging areas for a variety of species.
- Among other impacts, industrial wind turbines require new graded pads, access roads, water
  use, erosion, dust issues and more. They also generate low frequency noise and vibrations which
  can interfere with ground dwelling species, their communication, alerts, and otherwise
  wellbeing.
- The necessary avoidance of the flight path due to a combination of tens of thousands of acres of
  industrial solar and wind turbine arrays will have a cumulative impact on the aerial operations
  and activities of law enforcement, including Homeland Security, and military and perhaps their
  communications and for radar.
- The Plan of Development map below, submitted to BLM, shows the proposed 14,900 acre, 561 MW, Pattern Energy Ocotillo Express industrial wind energy project several miles west of IV Solar / Solar Two. Note the location of the community of Ocotillo where the proposed alternate water source is also located.
- Ocotillo will be surrounded by churning, humming, strobe flashing, view altering turbines and rows upon rows of rotating, buzzing, glint and glaring SunCathers, and the related transmission lines and substations.
- The proposed Ocotillo Express wind project location is between the Coyote Mountain Wilderness and the Jacumba Mountain Wilderness. These areas, including the valley between is occupied bighorn sheep habitat.

O8-17



**O8-17** 

- SDG&E has announced a new 14 MW solar project adjacent to their Imperial Valley Substation (SNL Financial 3-26-10) <a href="http://.snl.com/interativeX/article.aspx?=1">http://.snl.com/interativeX/article.aspx?=1</a>.
- The new 14-MW project is in addition to the proposed expansion of the IV Substation, the proposed connection of both IV Solar/Solar Two and the Sunrise Powerlink to the IV Substation
- This is considered new information along with the proposed adjustment of the IV Solar transmission line at the Substation.
- There are many other renewable energy project proposals in the area along with existing mining and other operations, including Zemer Energy Union Fenosa 1,000MW in Baja's La Rumorosa area. RETI maps showed potential cross-border power lines to export energy to the US grid.

Response: Section 2.10, Overview of the Cumulative Impacts Analysis, in the Final Environmental Impact Statement (FEIS) describes the rationale for identifying renewable energy and other development projects to be evaluated in the cumulative impacts analysis. Although all reasonable renewable energy projects known at the time the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) analyses were prepared were included in that analysis, it is also acknowledged that not all of the renewable energy projects identified may actually be constructed because they:

(1) Propose technologies at a larger scale than currently available;

- (2) Require approvals from Federal and State permitting agencies that may not feasible; and/or
- (3) Are largely competing for financing from the same limited sources.

Given these uncertainties, the list of cumulative projects evaluated in the SA/DEIS and the FEIS is broader than would likely actually be constructed and represents a conservative (worst case) identification of possible cumulative projects. As described in Section 2.10 in the FEIS, the analyses for the individual environmental parameters included identification of the specific cumulative projects that could potentially contribute to cumulative impacts for each specific environmental parameter.

Several projects were identified in comments on the SA/DEIS. However, these projects were announced subsequent to preparation and distribution of the SA/DEIS. Typically, analyses for an environmental document are based on information known at a certain time, which can be the date of the Notice of Intent (under the National Environmental Policy Act (NEPA)) and/or the Notice of Preparation (under the California Environmental Quality Act). The SA/DEIS analyses was based projects and information known about those projects in 2009. For projects announced after the preparation of the cumulative impacts analyses, there is little or no information related to those extent of projects or their potential environmental impacts. As a result, evaluation of those projects in the cumulative impact analyses would be speculative. It is expected that the environmental documentation for those projects would assess those projects' contributions to cumulative impacts, including consideration of the Imperial Valley Solar (IVS) project and the other known energy and development cumulative projects listed in the IVS project FEIS, as well as other relevant past, present and reasonably foreseeable projects known at the times those other cumulative impacts analyses are conducted for those projects.

In particular, the Solar Programmatic Environmental Impact Statement (Solar PEIS) initiated by the United State Department of Energy (DOE) is scheduled for completion in late 2011. Through that Solar PEIS, the DOE is considering whether to develop a solar energy program of environmental policies and mitigation strategies that would apply to the deployment of DOE supported solar energy projects on United States Bureau of Land Management (BLM) administered lands or other Federal, State, tribal or private lands. Until the Solar PEIS is completed and the BLM issues a Record of Decision concerning its content, the BLM will continue to process the IVS project and other active solar applications that have been filed pursuant to existing agency policies and procedures. Consideration of the IVS project is anticipated to be included in the PEIS as part of its cumulative analysis.

The level of analysis for cumulative impacts for an environmental document is commensurate with the level of information available regarding the range of projects that are under

consideration. Given that not all of the projects identified in the cumulative projects list have been evaluated to a level where the project specific impacts have been assessed and identified, the analyses in the SA/DEIS and FEIS identified the potential environmental impacts of the cumulative projects commensurate with the level of detail available for those projects at the time the analyses were completed. The cumulative analysis in each topical section identifies the IVS project impacts, the effects of the cumulative projects, and the potential contribution of the IVS project to cumulative impacts in addition to the impacts of the cumulative projects, consistent with the requirements of the NEPA.

The cumulative impact assessment of air quality and greenhouse gas (GHG) emissions clearly describes the procedure used to assess cumulative impacts. The air quality and GHG impacts of past, present and reasonably foreseeable projects are discussed in Section 4.4, Climate Change, in the FEIS, to the extent feasible given available data regarding the other cumulative projects.

The potential impacts of the IVS project to recreational resources are addressed in detail in Section 4.12, Recreation, in the FEIS. The analysis of the effects of the cumulative projects on recreation resources is also provided in Section 4.12. That analysis represents the level of detail available to describe the potential cumulative impacts to recreation resources from past, present and reasonably foreseeable projects including the IVS project.

The potential impacts of the IVS project to sensitive habitats, endangered species, and jurisdictional waters are addressed in detail in Section 4.3, Biological Resources, in the FEIS. The analysis of the effects of the cumulative projects on natural communities, endangered species, wildlife movement, and jurisdictional waters is also provided in Section 4.3 of the FEIS. Those analyses represent the level of detail available to describe the potential cumulative impacts to biological resources from past, present and reasonably foreseeable projects including the IVS project.

The use of groundwater from the Dan Boyer Water Company would not change the cumulative impact analyses prepared for the SA/DEIS and the FEIS. The Dan Boyer Water Company well, the anticipated source of short-term water for construction and operation, is a well that already has adjudicated rights to use the groundwater and the amount of groundwater proposed to be used by the IVS project would be within the limits set forth in the adjudication. Therefore, the groundwater used for the IVS project would not reduce groundwater resources beyond limits that are already established and would not contribute to cumulative impacts to groundwater.

The use of water by the identified past, present and reasonably foreseeable projects has been established using the best available information and adequately addressing the potential cumulative water impact associated with those projects. It was asserted that construction of the IVS project would allow development and population growth in the areas to receive the electricity produced by the project. Electricity generated by the IVS project would address existing and currently forecasted demand by San Diego Gas and Electric (SDG&E) customers and is largely intended to replace other sources of electricity generated for SDG&E with a cleaner, renewable source of electricity. The generation of electricity by the IVS project will not, in and of itself, result in development beyond current levels forecast by the applicable Federal, State, regional, and local agencies. The IVS project is specifically intended to assist SDG&E in meeting State mandates to achieve 20 percent of electricity generation from renewable resources in the future.

# D.4.5 California Desert Conservation Area Plan

These comments expressed concerns about the scope, nature, and specifics of the amendment to the California Desert Conservation Area Plan (CDCA Plan, 1980, as amended) required for the Imperial Valley Solar (IVS) project or the other Build Alternatives.

Comments: NA1-16, NA1-17, NA1-18, O2-2, O2-5, O2-6, O2-7, O2-9, O2-17, O4-9, P9-2, and P11-27.

- III. Comments regarding Amendment to California Desert Conservation Plan.
  - A. The Amendment Should Be Rejected Because the Project Will Permanently and Adversely Affect Cultural and Biological Resources.

The California Desert Conservation Plan (herein "CDCA") lists certain criteria to be used when evaluating future applications for energy-related projects. One of the decision criteria is that sensitive resources should be avoided wherever possible. In this case, due to the significant and comprehensive presence of cultural resources throughout the project area, the project cannot be developed in a way that will avoid damage to sensitive cultural resources, or to the sensitive Flat-tailed Horned Lizard population. The analysis of this criteria in the DEIS, at p. A-9, fails to address impacts to the FTHL or cultural resources, which will not be avoided in project development. A major goal of the CDCA is to protect and preserve the sensitive resources in the desert environment. This proposed amendment is inconsistent with that goal and with the requirements of FLPMA.

B. The Amendment Should Be Rejected Because the Project Does Not Conform to the Local Land Use Plan for Imperial County.

Another CDCA decision criteria requires "conformance to local plans wherever possible." Here, the applicable local Imperial County land use designation for the project area is "Open Space Preservation Zone." See DEIS, p. A-5. This designation does not allow use for electric power generation projects. DEIS, p. A-5. Page A-10 of the DEIS asserts that the project in conformance with the Imperial County General Plan, but fails to acknowledge the lack of compliance with applicable zoning. Amendment of the CDCA to permit a large-scale power development in an area zoned by the local government for open space preservation is not appropriate. See DEIS, page C.8-18 ("the proposed project would not be consistent with the intent of the S-2 zone within the county's Land Use Ordinance"); see also 43 U.S.C. § 1712(c) ("land use plans of the Secretary... shall be consistent with State and local plans to the maximum extent he finds consistent with Federal law and the purposes of [FLPMA]").

NA1-17

NA1-16

C. The Plan Amendment Should Be Rejected Because This Large-Scale Solar Development. In Conjunction with the Cumulative Impacts of Nearby Developments. Will Unreasonably Shift the Multiple-Use Balance in the California Desert Conservation Area In Favor of Power Production and Could Result in Permanent Impairment of Resources In Violation of FLPMA.

The Plan Amendment process requires BLM to determine the environmental effects of granting the applicant's request and also to evaluate the effect of the proposed amendment on BLM's desert-wide obligation to achieve and maintain a balance between resource use and resource protection. Approving the plan amendment here would unreasonably shift the multiple use balance in favor of resource use/development. See also 43 U.S.C. § 1712(c)(1) (requiring the Secretary to use and observe the principles of multiple use and sustained yield when developing or revising land use plans).

NA1-18

As proposed, the proposed project would cover approximately 6.185 acres approximately 9.7 square miles) of Sonoran desert scrub that is prime habitat for the federally proposed threatened flat-tailed homed lizard ("FTHL") including foraging habitat for the federally and state listed endangered Peninsular bighorn sheep. Unfortunately, the DEIS for the proposed plan amendment and right-of-way application fails to provide adequate identification

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and analysis of the significant impacts to the endangered Peninsular bighorn sheep, the flat-tailed horned lizard, rare plants, and other biological resources, fails to adequately address the significant cumulative and growth inducing impacts of the project, and lacks consideration of a reasonable range of alternatives. In addition, BLM has failed to fully examine the impact of the proposed plan amendment to the California Desert Conservation Act Plan ("CDCA Plan") along with other similar proposed plan amendments that which would result in industrial sites sprawling across the California Desert within habitat that should be protected to achieve the goals of the bioregional plan as a whole.

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 The BLM's Analysis of the Proposed Plan Amendment and Proposed Project Fail to Comply with FLPMA.

As part of FLPMA, Congress designated 25 million acres of southern California as the California Desert Conservation Area ("CDCA") 43 U.S.C. § 1781(c). Congress declared in FLPMA that the CDCA is a rich and unique environment teeming with "historical, seenic,

archaeological, environmental, biological, cultural, scientific, educational, recreational, and economic resources." 43 U.S.C. § 1781(a)(2). Congress found that this desert and its resources are "extremely fragile, easily scarred, and slowly healed." Id. For the CDCA and other public lands, Congress mandated that the BLM "shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C § 1732(b).

The sum total of the plan amendment to the CDCA plan is one sentence: "Permission granted to construct solar energy facility (proposed SES Solar Two Project)." DEIS at A-6. Given the impact of the proposed project on other multiple uses of these public lands at the proposed site as well as other aspects of the bioregional planning, it appears that BLM may also need to amend other parts of the plan as well and should have looked at additional and/or different amendments as part of the alternatives analysis. For example, the project surveys again confirm and provide new information on the biological richness of the area and the relatively robust flat-tailed horned lizard population, the proposed project site as a potential connector between existing Yuha Basin Management Area and the West Mesa Management Area, which were specifically set up for conservation of flat-tailed horned lizard, and also show the utilization of the site by the federally and state endangered Peninsular bighorn sheep. In light of this information, the BLM should consider an alternative plan amendment that would designate this area as an Area of Critical Environmental Concern for habitat conservation or an expansion of the flat-tailed horned lizard management areas in conjunction with improvements to increase wildlife connectivity across Interstate 8. Based on the 2,000 - 5,000 animals (DEIS at C.2-22) that are estimated to be on the proposed project site, the site would serve flat-tailed horned lizard conservation at least as well as the existing Management Areas for the conservation of this species and would also provide connectivity values. This should have been considered as an alternative to the proposed large-scale industrial use, which could instead be sited on previously disturbed areas that provide little habitat values for imperiled wildlife.

As discussed further below regarding FLPMA, and in the section on NEPA and segmentation, the BLM should have taken a more comprehensive look at the plan amendment to determine: 1) whether industrial scale projects are appropriate for any of the public lands in this area; 2) if so, how much of the public lands are suitable for such industrial uses given the need to balance other management goals including flat-tailed horned lizard and Peninsular bighorn sheep conservation and recreational uses, and 3) the location of the public lands suitable for such uses, if any. Rather, BLM appears to have looked at this application and others in the area on BLM managed lands, as well as other proposed projects, in isolation. As a result, this piecemeal

approach to project review threatens to undermine the "bioregional" approach in the CDCA Plan

as a whole as well as violate the fundamental planning principles of FLPMA.

 The DEIS Fails to Adequately Address the Plan Amendment in the Context of the CDCA Plan.

Unfortunately, the DEIS fails to adequately consider the impacts of the proposed project and plan amendment and reasonable alternatives in the context of FLPMA and the CDCA Plan. FLPMA requires that in developing and revising land use plans, the BLM consider many factors and "use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences . . . consider the relative scarcity of the values involved

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and the availability of alternative means (including recycling) and sites for realization of those values." 43 U.S.C. § 1712(c). As stated clearly in the CDCA Plan:

The goal of the Plan is to provide for the use of the public lands, and resources of the California Desert Conservation Area, including economic, educational, scientific, and recreational uses, in a manner which enhances wherever possible—and which does not diminish, on balance—the environmental, cultural, and easthetic values of the Desert and its productivity.

CDCA Plan at 5-6. The CDCA Plan also provides several overarching management principles:

#### MANAGEMENT PRINCIPLES

The management principles contained in the law (FLPMA)—multiple use, sustained yield, and the maintenance of environmental quality—are not simple guides. Resolution of conflicts in the California Desert Plan requires innovative management approaches for everything from wilderness and wildlife to grazing and mineral development. These approaches include:

—Seeking simplicity for management direction and public understanding, avoiding complication and confusing in detail which would make the Plan in comprehensive and unworkable.

—Development of decision-making processes using appropriate guidelines and criteria which provide for public review and understanding. These processes are designed to help in allowing for the use of desert lands and resources while preventing their undue degradation or impairment.

—Responding to national priority needs for resource use and development, both today and in the future, including such paramount priorities as energy development and transmission, without compromising the basic desert resources of soil, air, water, and vegetation, or public values such as wildlife, cultural resources, or magnificent desert scenery. This means, in the face of unknowns, erring on the side of conservation in order not to risk today what we cannot replace importow.

—Recognizing that the natural patterns of the California Desert, its geological and biological systems, are the basis for planning, and that human use patterns, from freeways to fence lines, define its boundaries. Only in this way can the public resources can be understood and protected by the Plan that can be publicly comprehended, accepted, and followed.

CDCA Plan 1980 at 6 (first emphasis in original, second emphasis added).

The CDCA Plan anticipated that there would be multiple plan amendments over the life of the plan and provides specific requirements for analysis of Plan amendments. Those requirements include determining "if alternative locations within the CDCA are available which would meet the applicant's needs without requiring a change in the Plan's classification, or an amendment to any Plan element" and evaluating "the effect of the proposed amendment on BLM

management's desert-wide obligation to achieve and maintain a balance between resource use and resource protection." CDCA Plan at 121. Thus, BLM should have, at minimum, analyzed in the DEIS whether alternative locations were available that would not require a plan amendment, and how the proposed amendment would affect desert-wide resource protection—it failed on both counts.

The CDCA Plan includes the Energy Production and Utility Corridors Element which is focused primarily on utility corridors with brief discussion of powerplant siting. Even in 1980 the CDCA Plan contemplated that alternative energy projects would likely be developed in the future but did not expressly provide planning direction for solar energy production. Nonetheless, the overarching principles expressed in the Decision Criteria are also applicable to the proposed project here including minimizing the number of separate rights-of-way, providing alternatives for consideration during the processing of applications, and "avoid[ing] sensitive resources wherever possible." CDCA Plan at 93. Nothing in the DEIS shows that BLM considered the landscape level issues and management objectives or meaningful alternatives to the proposed plan amendment—including an alternative that would designate this area as an ACEC or a Management Area for flat-tailed hormed lizard conservation.

In addition, BLM should have considered the impacts to existing land use plans for these public lands across several scales including, for example: in the western Imperial Valley; in the Imperial Valley as a whole; in the Salton Trough; and in the CDCA as a whole.

# B. The DEIS Fails to Adequately Address Impacts to Multiple Use Class L Lands and Loss of Multiple Use in Favor of a Single Use for Industrial Purposes.

As FLPMA declares, public lands are to be managed for multiple uses "in a manner that will protect the quality of the scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values." 43 U.S.C.§ 1701(a)(7) & (8). The CDCA Plan as amended provides for four distinct multiple use classes based on the sensitivity of resources in each area. The proposed project site is in MUC class L lands. DEIS at C.13-4. Under the CDCA Plan, Multiple-use Class L (Limited Use) "protects sensitive, natural, scenic, ecological, and cultural resources values. Public lands designated as Class L are managed brovide for generally lower-intensity, carefully courtoiled multiple use of resources, while ensuring that sensitive values are not significantly diminished." CDCA Plan at 13 (emphasis added). The proposed project is a high-intensity, single use of resources that will displace other uses and that will significantly diminish (indeed, completely destroy) of over 6,000 acres of good-quality occupied flat-tailed horned lizard habitat among other impacts. On this basis as well as others the proposed project is inappropriate for a Limited Use area such as this one and the terms of the proposed plan amendment are inconsistent with the CDCA Plan.

Although solar development is a potentially allowable use in this area, the BLM must take into account all of the relevant multiple uses of the area that could be displaced before making a decision including, for example, the displacement of flat-tailed homed lizards, the displacement of Peninsular bighorn sheep from foraging habitat, destruction and fragmentation

of high quality habitat, and impacts to water quality and groundwater resources, cultural resources, and native American values.

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The DEIS acknowledges that "Under the proposed project an area of roughly 10 square miles, including over 5.6 miles of frontage on Highway I-8, would experience a dramatic visual transformation from a predominantly natural desert landscape to one of a highly industrial character." DEIS at C. 13-23 (in the context of visual resources). In the DEIS this issue is looked at solely in the context of visual resources, however, and no where in the document does BLM look at the issue of industrialization in the context of biological resources, the CDCA Plan as a whole, or how transformation of this area will affect the overall landscape-wide bioregional planning approach.

The adoption of the proposed plan amendment will change the multiple-use character of these lands which currently provides habitat for imperiled species, recreational uses including a historic trail and other cultural resources, camping and off-road vehicle routes, in favor of a single use that will completely displace other uses on the proposed site. For example, the proposal would require changes in the route network resulting in several routes which would need to be moved-those changes to the route network are simply not addressed in the DEIS (nor are the likely direct, indirect and cumulative impacts of changing those route designations adequately identified or analyzed, as discussed in detail below). Any changes to routes would require BLM to amend the route designations in the area because these routes are part of a network that was adopted through a plan amendment. When BLM does consider these issues, as it must, in a revised or supplemental DEIS, a range of alternatives must be considered in addition to the fact that such changes will undoubtedly change use of the previously existing nearby routes, most likely causing increased use on other nearby routes. Even if BLM attempts to simply reroute along the fenceline for the proposed project a plan amendment would be required and BLM must then consider that new unauthorized routes to provide connections to the other routes, and/or entirely new unauthorized routes may be created by off-road vehicle users to avoid the industrial site entirely. There is no evidence that recreational off-road vehicle users will be content to drive for miles along a fence adjoining an industrial site rather than striking off crosscountry to connect with more scenic routes. Past experience shows that the latter is quite

understandably a much more likely outcome and BLM should recognize this in analyzing the impacts of this project on the existing route network and any proposal to amend that network.

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# A. Purpose and Need and Project Description are Too Narrowly Construed and Unlawfully Segment the Analysis

1. Purpose and Need:

Agencies cannot narrow the purpose and need statement to fit only the proposed project and then shape their findings to approve that project without a "hard look" at the environmental consequences. To do so would allow an agency to circumvent environmental laws by simply "going-through-the-motions." It is well established that NEPA review cannot be "used to rationalize or justify decisions already made." 40 C.F.R. § 1502.5; Metcalf v. Daley, 214 F.3d 1135, 1141-42 (9th Cir. 2000) ("the comprehensive 'hard look' mandated by Congress and required by the statute must be timely, and it must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge designed to rationalize a decision already made.") As Ninth Circuit noted an "agency cannot define its objectives in unreasonably narrow terms." City of Carmel-by-the-Sea v. U.S. Dept. of Transportation, 123 F.3d 1142, 1155 (9th Cir. 1997); Muckleshot Indian Tribe v. U.S. Forest Service, 177 F. 3d 900, 812 (9th Cir. 1999). The statement of purpose and alternatives are closely linked since "the stated goal of a project necessarily dictates the range of 'reasonable' alternatives." City of Carmel, 123 F.3d at 1155. The Ninth Circuit recently reaffirmed this point in National Parks Conservation Assn v. BLM, 586 F.3d 735, 746-48 (9th Cir. 2009) (holding that "[a]s a result of [an] unreasonably narrow purpose and need statement, the BLM necessarily considered an unreasonably narrow range of alternatives" in violation of NEPA).

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The purpose behind the requirement that the purpose and need statement not be unreasonably narrow, and NEPA in general is, in large part, to "guarantee[] that the relevant information will be made available to the larger audience that may also play a role in both the decision-making process and the implementation of that decision." Robertson v. Methow Valley Citizens Council, 490 US. 332, 349 (1989). The agency cannot camouflage its analysis or avoid robust public input, because "the very purpose of a draft and the ensuing comment period is to elicit suggestions and criticisms to enhance the proposed project." City of Carmel-by-the-Sea, 223 F.3d at 1156. The agency cannot circumvent relevant public input by narrowing the purpose and need so that no alternatives can be meaningfully explored or by failing to review a reasonable range of alternatives.

The BLM's purpose and need for the SES Solar Two Project is "to respond to SES Solar Two, LLC's application under Title V of FLPMA (43 U.S.C. 1761) for a ROW grant to construct, operate, and decommission a solar thermal facility on public lands in compliance with FLPMA, BLM ROW regulations, and other Federal applicable laws", and also states that the "BLM authorities include"

- Executive order 13212, dated May 18, 2001, which mandates that agencies act
  expediently and in a manner consistent with applicable laws to increase the "production
  and transmission of energy in a safe and environmentally sound manner."
- The EPAct, which requires the Department of the Interior (BLM's parent agency) to approve at least 10,000 MW of renewable energy on public lands by 2015.
   Secretarial Order 3285, dated March 11, 2009, which "establishes the development of renewable energy as a priority for the Department of the Interior."

DEIS at A-12. The DEIS notes that an amendment to the CDCA Plan is needed in order to approve the project but does not clearly identify the plan amendment as a part of the project being evaluated. Rather, the DEIS states: "The BLM will decide whether to approve, approve with modification, or deny issuance of a ROW grant to SES Solar Two, LLC for the proposed SES Solar Two Porject. The BLM's actions will also include consideration of amending the CDCA Plan concurrently." DEIS at A-12. BLM's purpose and need is very narrowly construed to the proposed project itself and an amendment to the Plan for the project only. The purpose and need provided in the DEIS is impermissibly narrow under NEPA for several reasons, most importantly because it foreclosed meaningful alternatives review in the DEIS. See DEIS at B.2.1 and discussions below regarding alternatives. Because the purpose and need and the alternatives analysis are at the "heart" of NEPA review and affect nearly all other aspects of the EIS, on this basis and others, BLM must revise and re-circulate the DEIS.

The DOE purpose and need statement provides:

The EPAct of 2005 established a Federal loan guarantee program for eligible energy projects that employ innovative technologies. Title XVII of the EPAct of 2005 authorizes the Secretary of Energy to make loan guarantees for a variety of types of projects, including those that "avoid, reduce, or sequester air pollutains or anthropogenic emissions of greenhouse gases, and employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued".

The two purposes of the loan guarantee program are to encourage commercial use in the United States of new or significantly improved energy-related technologies and to achieve substantial environmental benefits. The purpose and need for action by DOE is to comply with its mandate under EPAct by selecting eligible projects that meet the coals of the Act.

DEIS at A-12. As the applicant admits the proposed project is experimental at the scale proposed: the applicant's objective is states: "To assist in meeting the requirement for additional

generating capacity, the applicant has developed solar technology which requires commercialscale development to demonstrate its technical and commercial viability" DEIS at A-10. Thus, the proposed project appears to meet the DOE criteria because it is admittedly "new"—indeed, experimental — technology at the proposed scale, and the applicant hopes that it will assist in meeting the renewable generating capacity. However, by that same token, the DEIS fails to address the experimental nature of the proposed project including the likelihood of success (or failure) and the consequences of failure (including technological failures and financial failures) and the full extent of the likely resulting impacts to public lands.

In discussing the cumulative scenario, the DOE loan guarantee program is also described as one of the incentive programs for funding renewable energy projects:

Example[s] of incentives for developers to propose renewable energy projects on private and public lands in California, Nevada and Arizona, include the following:

- U.S. Treasury Department's Payments for Specified Energy Property in Lieu of Tax Credits under §1603 of the American Recovery and Reinvestment Act of 2009 (Public Law 1115) - Offers a grant (in lieu of investment tax credit) to receive funding for 30% of their total capital cost at such time as a project achieves commercial operation (currently applies to projects that begin construction by December 31, 2010 and begin commercial operation before January 1, 2017).
- U.S. Department of Energy (DOE). Loan Guarantee Program pursuant to §1703 of Title XVII of the Energy Policy Act of 2005 Offres a loan guarantee that is also a low interest loan to finance up to 80% of the capital cost at an interest rate much lower than conventional financing. The lower interest rate can reduce the cost of financing and the gross project cost on the order of several hundred million dollars over the life of the project, depending on the capital cost of the project.

DEIS at B 3-2 to 3

The Center is well aware that deadlines for funding, particularly for the American Recovery and Reinvestment Act ("ARRA") funds, have driven the pace of the environmental review for this project and, while such funding mechanisms are important, deadlines cannot be used as an excuse for rushed and inadequate NEPA review. The BLM and DOE must be concerned with the adequate NEPA review and even if the agencies can properly have an objective of timely approval of projects they cannot properly have as purpose and need of the project a rushed inadequate environmental impact review.

<sup>&</sup>lt;sup>5</sup> As the BLM is aware, the largest installation of Stirling suncatchers is a 1.5 MW, 60 dish facility in Maricopa County, Arizona installed in January 2010. The proposed project is proposed to install 30,000 suncatchers (DEIS at B.1-20) approximately 500 times larger. <a href="http://www.stirlings.nerry.com/pdf/2010-01-22.pdf">http://www.stirlings.nerry.com/pdf/2010-01-22.pdf</a>

Moreover, in its discussion of the need for renewable energy production the DEIS fails to address risks associated with global climate change in context of including both the need for climate change mitigation strategies (e.g., reducing greenhouse gas emissions) and the need for climate change adaptation strategies (e.g., conserving intact wild lands and the corridors that connect them). All climate change adaptation strategies underline the importance of protecting intact wild lands and associated wildlife corridors as a priority adaptation strategy measures.

As the DEIS admits, building the proposed project at the proposed location "would permanently eliminate approximately 5.024.4 acres of Sonoran creosote bush scrub and approximately, 10.88.7 acres of disturbed/developed Sonoran creosote bush scrub." DEIS p. C.2-29. In addition, "[g]rading would directly affect wildlife and other special status species by removal of shrubs and herbaceous vegetation, resulting in loss and fragmentation of cover, breeding, and foraging habitat." DEIS p. C.2-29.

The habitat fragmentation, loss of connectivity for terrestrial wildlife, and introduction of predators and invasive weed species associated with the proposed project in the proposed location are contrary to an effective climate change adaptation strategy that the agencies also claim to support. Siting the proposed project in the proposed location impacting major washes and occupied habitat of imperiled species could undermine a meaningful climate change daptation strategy. The way to

maintain healthy, vibrant ecosystems is not to fragment them and reduce their biodiversity.

Cumulative Impacts; In order to properly site renewable energy projects, it is essential that a cumulative impacts analysis be conducted to fully evaluate the implications of this type of development on public lands. There are several wind and transmission projects in the vicinity of the Solar Two power plant that will contribute to overall cumulative impacts to sensitive resources in this area. A list of existing and future foreseeable projects is included in the DEIS, id. B.3-7 to B.3-10. In addition, the DEIS utilizes qualitative information about these existing and foreseeable projects to develop estimates and model impacts on key topics such as air quality and biological resources. More quantitative information is highly desirable, to supplement this quantitative material.

Heat his will also impact BLM lands adversely- that BLM has a multiple use mendate, and this will take over all other uses at this site. These solar panels will permanently aller the ecosystem in his areas (read the Draft Elf-Empacts will less thousands of years), and this will become the dominant use of fire land-all other uses (including those of widths and recreation) will be subnumed.

#### BLM CDCA Plan Amendment Issues

- 50. The Summary in Sec A.3 for Land use plan conformance and amendment raises troubling questions about how BLM language is to be interpreted. I reviewed the section of the SA/DEIS and compared that with text from BLM's 199 version of the 1980 CDCA Plan.
- 51. What uses are categorically allowed in all Class L Multiple Use areas.? It is extremely troubling to note that the A-8 text suggests that in BLMs\* Class L lands that such intensive surface damaging industrial activities would be consistent with a Class L designation without any amendment to the CDCA Plan. The SA/DEIS p. A-8 states that: "The proposed project does not require a change in the Multiple-Use Class classification for any area within the CDCA." Very specifically the BLM CDCA Plan makes the following statement defining Multiple Use Class Ls:

02-17

04-9

P11-27

#### 52 MULTIPLE-USE CLASS L

Multiple-Use Class L (Limited Use) protects sensitive, natural, scenic, ecological, and cultural resource values. Public lands designated as Class L are managed to provide for generally lowerintensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished. (BLM CDCA Plan As Amended at p. 13, copied verbatin from Plan).

- 53. Please explain what it is that I do not understand about the nature of the activities proposed for the solar project including roads, buried piping, installation of SunCatcher units, construction of buildings, et that is in any way protective of the sensitive natural, scenic, ecological, and cultural resource values that we hear about in public meetings, workshops and evidentiary hearings. What I have heard sounds like privatization, fencing to exclude all other uses, and carving up the land with more than 234 miles of scraped unpaved roads to access the intensive industrial facilities components. Massive industrial conversion of 6,500 acres for private use seems the antithesis of compliance with the language and intent of the Multiple-Use Class L designation.
- 54. If as other text on BLM 199 Amended CDCA Plan (at p. 13) suggests that 5,883,000 acres of BLM administered public lands (or 48.5% of CDCA lands) are Class L, should the public now be advised that 48.5% of BLM managed lands or almost 5.9 million acres are now fair game for intensive industrial development for "renewable energy" and could be considered sacrifice areas for disposal to private investors at the expense of the public treasure and at a use loss for the resource values that triggered the Class L designation?
- 55. Has the definition of Multiple Use Class L already been changed to allow for intensive industrial scale solar, or is it the intent of the CDCA Plan Amendment for this or another project to change the definition of Class L to allow industrial scale solar generating facilities in any and all Class L 5,883,000 acres of public lands managed by BLM in the CDCA? If the definition of Class L has been changed, when was it and by what means was that information conveyed to the public, not just industry.
  - 56. Title VI of the FLPMA, under CDCA, provides for the immediate and future protection and administration of the public lands in the California desert within the framework of a program of multiple use and sustained yield, and maintenance of environmental quality. Multiple use includes the use of renewable energy resources, and through Title V of FLPMA, the BLM is authorized to grant ROWs for generation and transmission of electric energy. The acceptability of use of public lands within the CDCA for this purpose is recognized through the Plan's approval of solar generating facilities within Multiple-Use Class I., (SA/DEIS at p. A-9) (emphasis added)
- 57. But what does this mean? Has the definition of Class L already been changed? Or is it that the CDCA wide definition for Multiple Use Class L will be changed if the Plan is Amended for this project, even if the Amendment is to deny the siting of any future solar projects on the proposed IV Solar site? The language of any Plan Amendment is extremely important because the Plan covers more than 12 million acres of BLM managed lands in California. An error or omission in language could create loopholes of unimaginable magnitude and significance. (Imperial Courty spent more than 15 years and 8 lawsuits in state and federal court, because it ignored public concerns, and compounded that mistake in judgement by the addition of the letter "s" at the end of a single word. Relevant, of course, because that mistake was related to use of groundwater from a single well in Ocotillo, consequences to the groundwater basin locally were bad enough, but years in court for County vs the property owner all could have been avoided. That was one wells, but there was litigation related to impacts of export from a second well also.)

P11-27

- 58. I spoke with Daniel Steward at the BLM EL Centro Field office this morning to try to understand answers. There were no answers, only encouragement to raise the issue in comments. I also spoke with Jim Stobaugh and understand that any Plan Amendment would be very site specific. Nevertheless, experience urges caution, because I am uncertain who the ultimate decision-maker or cafter of Plan Amendment text might be.
- 59. The SA/DEIS mentions site specific plan amendment when it states that "the proposed project would require a BLM ROW grant and a project-specific CDCA Plan Amendment." (C.8-1) But with more than 1 million acres of the CA desert proposed for solar and wind energy development, any Plan Amendment, no matter how site specific it is intended to be could, indeed would have implications far beyond the specific project site.

P11-27

Response: As described in Sections 1.2.1, and 2.2.1.2 and later analyzed in Section 4.9 in the Final Environmental Impact Statement (FEIS), the CDCA Plan, while recognizing the potential compatibility of solar generation facilities on public lands, requires that all sites associated with power generation or transmission not specifically identified in the CDCA Plan for a project site be considered through the Plan Amendment process.

In addition, the IVS project site is designated as Multiple-Use Class L (Limited Use) in the CDCA Plan. The CDCA Plan allows solar energy uses in that land use designation in the CDCA provided that NEPA requirements are met and the CDCA Plan is properly amended. The construction and operation of a solar generating project on the IVS project site would require the BLM to amend the CDCA to specifically allow a solar energy generating project within the Multiple Use Class L (Limited Use) designation on the IVS project site. Therefore, the amendment to the CDCA Plan pertains only to the IVS project site and is further limited by the accompanying right-of-way grant application.

The CDCA Plan amendment will not result in any changes to the Limited Use designation. The amendment will allow the solar use only on the IVS project site and will not result in any changes in lands use designations or authorized lands uses anywhere else in the CDCA. The CDCA Plan amendment would only apply the to approximately 6,100 ac of BLM-managed land being evaluated for the IVS project. As stated in the FEIS, the reason for the amendment is to specifically allow a solar power generation project on that 6,100 ac parcel which was not previously designated in the CDCA Plan. This amendment and the overall amendment process are consistent with the implementation of the CDCA Plan.

The CDCA Plan was adopted in 1980 and has since been amended many times. Frequently, long range plans that cover large geographic areas such as the California Desert are "living" documents intended to provide overall land use planning guidance and general regulation with more detailed land use information provided through amendments, special area plans, or other

more focused planning documents. James B. Ruch, the BLM California State Land Director in his letter presenting the CDCA Plan stated the following:

"The California Desert Plan encompasses a tremendous area and many different resources and uses. The decisions in the Plan are major and important, but they are only general guides to site-specific actions. The job ahead of us now involves three tasks:

- Site-specific plans, such as grazing allotment management plans or vehicle route designation;
- On-the-ground actions, such as granting mineral leases, developing water sources for wildlife, building fences for livestock pastures or for protecting petroplyohs; and
- Keeping people informed of and involved in putting the Plan to work on the ground, and in changing the Plan to meet future needs."

The CDCA Plan was initially prepared and continues to provide guidance concerning the use of the California desert public land holdings while balancing other public needs and protecting resources. Therefore, amendments to the CDCA Plan can be site specific or global depending on the nature of the amendment. In the case of the IVS project, the amendment is site specific. However, it should be noted that throughout the FEIS (in the land use, recreation and visual impacts analyses, for example), an adverse cumulative impact on desert lands is acknowledged on approximately 1 million acres of land that are proposed for possible solar and wind energy development in the southern California desert lands.



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# D.4.6 Air Quality

These comments relate to the attainment status in the project area and other air quality-related issues.

Comments: F2-31, F2-32, S2-5, O2-35, P11-14, and P11-16.

#### Air Quality

EPA agrees with the statement on page C.1-26 that a solar renewable energy project with a 30 to 40 year life in a setting likely to continue to be impacted by both local and upwind emission sources, should address its contribution to the potential ongoing nonattainment of the particulate matter (PM) 10 microns (PM<sub>10</sub>), PM<sub>23</sub> and ozone standards.

#### Recommendations:

- Imperial County was designated nonattainment for the 2006 PM<sub>2.5</sub> standard in October 2009. The air quality analysis should be revised to take into account this designation.
- Footnote 6 on page C.1-41 should be updated to reflect EPA's final action on Imperial County's finding of attainment for the 1997 8-hour ozone standard, dated 12/3/2009; see 74 FR 63309.
- For page C.1-41, please note that, on December 22, 2009, EPA Region 9 Acting Regional Administrator Laura Yoshii formally non-concurred on CARB's May 21, 2009 exceptional events requests.
- Table 5 (at pg. C.1-12), Table 12 (at pg. C.1-21) and Table 13 (at pg. C.1-24) should be updated to include ozone.
- The FEIS and Record of Decision should incorporate requirements related to revised fugitive dust rules from Imperial County that are expected to be released in the coming months, as appropriate.

# Mitigation Measures

EPA commends BLM for incorporating fugitive dust control measures to limit PM<sub>10</sub> impacts, and we appreciate the additional mitigation measures to address ozone precursors that are discussed on pages C.1.22 and C.1.25. We also were pleased at the inclusion of mitigation measure AQ-SC2 which would require the development of an Air Quality Construction Mitigation Plan (AQCMP) as well as engine requirements for diesel equipment specified by mitigation measure AQ-SC5.

EPA supports incorporating mitigation strategies to reduce or minimize fugitive dust emissions as well as more stringent emission controls for PM and ozone precursors for construction-related activity. All applicable state and local requirements and the additional and/or revised measures listed below should be included in the FEIS in order to reduce impacts associated with PM and toxic emissions from construction-related activities:

F2-32

## Recommendations:

Due to the serious nature of the PM<sub>10</sub>, PM<sub>25</sub> and 8-hour ozone conditions in the Salton Sea Air Basin, EA recommends that the best available control measures (BACM) for these pollutants be implemented at all times and that the FEIS incorporate the AQCMP. These measures should also be incorporated into the ROD. We recommend that all applicable requirements under local rules and the following additional measures be incorporated into the AQCMP.

#### Fugitive Dust Source Controls:

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative where appropriate. This applies to both inactive and active sites, during workdays, weekends, holidays, and windy conditions.
- Install wind fencing, and phase grading operations, where appropriate, and operate water trucks for stabilization of surfaces under windy conditions.
- When hauling material and operating non-earthmoving equipment, prevent spillage, and limit speeds to 15 miles per hour (mph) or lower. Limit speed of earth-moving equipment to 10 mph, 5 mph on unpaved roads and unsealed site areas.

#### Mobile and Stationary Source Controls:

- · Reduce use, trips, and unnecessary idling from heavy equipment.
- Maintain and tune engines per manufacturer's specifications to perform at California Air Resources Board (CARB) and/or EPA certification, where applicable, levels and to perform at verified standards applicable to retrofit technologies. Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications. CARB has a number of mobile source anti-idling requirements. See their website at: http://www.arb.ca.gov/msprog/truck-idling/truck-idling.htm
- Prohibit any tampering with engines and require continuing adherence to manufacturer's recommendations
- If practicable, lease new, clean equipment meeting the most stringent of applicable Federal or State Standards.
- Utilize EPA-registered particulate traps and other appropriate controls where suitable, to reduce emissions of diesel particulate matter and other pollutants at the construction site.

#### Administrative controls:

- Identify all commitments to reduce construction emissions and incorporate these reductions into the air quality analysis to reflect additional air quality improvements that would result from adopting specific air quality measures.
- Identify where implementation of mitigation measures is rejected based on economic infeasibility.
- Prepare an inventory of all equipment prior to construction, and identify the
  suitability of add-on emission controls for each piece of equipment before
  groundbreaking. (Suitability of control devices is based on: whether there is
  reduced normal availability of the construction equipment due to increased
  downtime and/or power output, whether there may be significant damage
  caused to the construction equipment engine, or whether there may be a
  significant risk to nearby workers or the public.) Meet CARB diesel fuel

- requirement for off-road and on-highway (i.e., 15 ppm), and where appropriate use alternative fuels such as natural gas and electric.
- Develop a construction traffic and parking management plan that minimizes traffic interference and maintains traffic flow.
- Identify sensitive receptors in the project area, such as children, elderly, and
  infirm, and specify the means by which you will minimize impacts to these
  populations. For example, locate construction equipment and staging zones
  away from sensitive receptors and fresh air intakes to buildings and air
  conditioners.

F2-32

impact in terms of erosion and air pollution that would potentially result from construction of the project.

S2-5

# F. The DEIS Fails to Adequately Identify, Analyze and Off-set Impacts to Air Quality and GHG Emissions.

Federal courts have squarely held that NEPA requires federal agencies to analyze climate change impacts. Center for Biological Diversity v. National Highway Traffic Sofety Administration, 508 F.3d 508 (9th Cir. 2007). As most relevant here, NEPA requires consideration of greenhouse gas emissions ("GHG emissions") associated with all projects and, in order to fulfill this requirement the agencies should look at all aspects of the project which may create greenhouse gas emissions including operations, construction, and life-cycle emissions

02-35

from materials. Where a proposed project will have significant GHG emissions, the agency should identify alternatives and/or mitigation measures that will lessen such effects.

As part of the NEPA analysis federal agencies must assess and, wherever possible, quantify or estimate GHG emissions by type and source by analyzing the direct operational impacts of proposed actions. Assessment of direct emissions of GHG from on-site combustion sources is relatively straightforward. For many projects, as with the proposed project, energy consumption will be the major source of GHGs. The indirect effects of a project may be more far-reaching and will require careful analysis. Within this category, for example, the BLM should evaluate, GHG and GHG-precursor emissions associated with construction, electricity use, fossif fuel use, water consumption, waste disposal, transportation, the manufacture of building materials (lifecycle analysis), and land conversion. Moreover, because many project may undermine or destroy the value of carbon sinks, including desert soils, projects may have additional indirect effects from reduction in carbon sequestration, therefore both the direct and quantifiable GHG emissions as well as the GHG effects of destruction of carbon sinks should be analyzed.

The discussion of greenhouse gas emissions ("GHG") in the DEIS notes that the solar generation itself will produce no GHGs "but there is direct and indirect gasoline and diesel fuel use in the maintenance vehicles, offsite delivery vehicles, staff and employee vehicles, and the two diesel-fueled emergency engines. Another GHG emission source for this proposed project is SF6 from electrical equipment leakage." DEIS, Greenhouse Gas Appendix, A-1-7. There is no discussion of reducing these sources by using alternative fuels or highly efficient vehicles and equipment.

02-35

The GHG emissions from the construction phase of the project are stated to be over 31,000 metric tons CO2 equivalent (Greenhouse gas table 2, DEIS A-1-6). Again, there is no discussion of reducing these emissions by using more efficient equipment or vehicles.

Moreover, leakage of SF6 is of particular concern as it is many times more potent greenhouse gas than CO2—indeed, its potential as a GHG has been estimated at 23,900 times that of CO2 (for a 100 year time horizon) and it can persist in the atmosphere far longer than CO2 as well—up to 3,200 years. The DEIS fails to state the actual amount of SF6 that is estimated to leak from equipment and provides only that 271.83 MTCO2E is expected in emissions each year. No information is provided on the calculation. Moreover, the DEIS does not analyze any alternatives to avoid or minimize the long-term emissions of this powerful GHG from operations and no mitigation measures are provided.

The DEIS also fails to adequately address other air quality issues most importantly PM10 both during construction and operation which is of particular concern in this area which is already in serious nonattainment. It is clear that on site grading and roads between the suncatcher components will increase bare soils and increase PM10 may be introduced into the air

by wind and that the use of the roads between the suncatchers will lead to additional PM 10 emissions from the site

The DEIS also fails to analyze the impacts to air quality and GHG emissions should a fire occur due to the extensive on-site hydrogen system. Of particular concern is that plans to minimize air quality impacts from construction, operations, and decommissioning are all deferred to later development with no clear standards.

BLM fails to identify any significant GHG emissions and therefore does not provide for avoidance, minimization, or mitigation. BLM has also failed to include the loss of carbon sequestration from soils in its calculations or to provide a lifecycle analysis of GHG emissions that include manufacturing and disposal. Moreover, it is undisputed that in the near-term GHG emissions will increase emissions during construction, and in the manufacturing and transportation of the components. BLM fails to consider any alternatives to the project that would minimize such emissions or to require that these near-term emissions be off set in any way.

Although the proposed project may reduce GHG's overall it is admittedly experimental and will cause GHG emissions that are not accounted for or off-set, BLM completely fails to explore this sapect of the impacts of the project in the DEIS in violation of NEPA.

- 26. Although the Staff may conclude that conversion of such acreage under FLPMA is consistent with applicable laws, ordinances, regulations and statues, (ES-32), it would create an significant and unavoidable impact, the negative effects which would be disproportionately felt is rural communities already suffering from adverse health impacts of air pollution. (See Exhibits 569, 570 and 571 related to Imperial County and EPA concerns about poor air quality and heath issues in Imperial County from a community leader, an elected official, and from US EPA..)
- 28. "Approximately 27 miles of paved arterial roads, 14 miles of unpaved perimeter roads, and approximately 234 miles of unpaved access routes would be constructed on the SES Solar Two Project site." (SA/DEIS ES-5) The project would not be able to operate it wind speeds exceed 35 mph. (ES-6) However, a major concern about the use of unpaved roads is the amount of dust that would be generated as surfaces are continually broken down by vehicular use for construction and maintenance. Increasing the travel speed on the unpaved roads from 15 mph to 25 mph as requested by the applicant on May 24, 2010 at the Evidentiary Hearing for the

purposes of reducing the time spent on travel thorough the site would appear to increase the amount of dust generated. Ultimately, during periods of higher winds, this would result in additional particulates reaching residents to the east, as I have seen when visiting friends in El Centro. I have observed clouds of sand blowing down the streets of El Centro with severely limited visibility, much worse than the dust storms where I live south of Ocotillo. (See Exhibits 569, 570, 571 to read of concerns about Imperial County air quality issues.)

Response: The Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) was published in February 2010. The discussion on attainment status in Section 3.2, Air Quality, in the Final Environmental Impact Statement (FEIS) on attainment status was updated to reflect status updates since February 2010. The updated statuses provided in Table 3-2 in the FEIS are provided here in Table D-2.

02-35

P11-14

P11-16

P11-16

Table D-2 Federal and State Attainment Status for the Project Site in Imperial County

Pollutant	Federal Attainment Status (Table Note 1)	State Attainment Status (Table Note 1)
O <sub>3</sub>	Nonattainment (changed from Moderate Nonattainment)	Moderate Nonattainment
CO	Attainment	Attainment
NO <sub>2</sub>	Attainment	Attainment
SO <sub>2</sub>	Attainment	Attainment
PM <sub>10</sub>	Serious Nonattainment	Nonattainment
PM <sub>2.5</sub>	Nonattainment (changed from Attainment)	Nonattainment (changed from Attainment)

Table Sources: California Air Resources Board (ARB 2009) and the United States Environmental Protection Agency (EPA 2009).

Table Note 1: Attainment = Attainment or Unclassified.

Table Key: CO = carbon monoxide;  $NO_2$  = nitrogen dioxide;  $O_3$  = ozone;  $PM_{10}$  = particulate matter less than 10 microns in size;  $PM_{2.5}$  = particulate matter less than 2.5 microns in size;  $SO_2$  = sulfur dioxide.

These changes do not have a substantial effect on the analyses provided in Sections 3.2 and 4.2, Air Quality, in the FEIS.

The footnote on page C.1-41 in Section C-1 Air Quality in the SA/DEIS is updated by reference to read "U.S. EPA determined on 12/3/09 that Imperial County is approved as attainment of the 1997 Federal 8-hour ozone standard." This change does not have a substantial effect on the analyses provided in Sections 3.2 and 4.2 in the FEIS.

Air Quality Table 4 in Section C-1 of the SA/DEIS lists ozone  $(O_3)$  air quality monitoring data for the project vicinity. Air Quality Tables 5, 12, and 13 in Section C-1 in the SA/DEIS do not include  $O_3$  because those tables provide data for the criteria pollutant modeling, which does not include  $O_3$ .

All applicable rules for control of fugitive dust emissions are included in Section 4.2 in the FEIS. Compliance with those rules during project construction and operation will be accomplished by implementing Measures AQ-SC3 and AQ-SC7. It is not appropriate to speculate on future rules in an FEIS. The incorporation of the best available control measures (BACM) is specified in the Imperial County Air Pollution Control District (ICAPCD) rules and, therefore, is included in the FEIS.

Emissions of SF<sub>6</sub> are quantified in Section 4.4, Climate Change, in the FEIS. The project-related emissions are no more than for any other type of electrical power plant, as they are from high voltage equipment. This is the only greenhouse gas (GHG) that is the same as traditional

electrical power plants. All the other GHG emissions for the project are either tremendously reduced or nonexistent for a solar power plant. Section 4.4 discusses construction and operational GHG emissions and climate change impacts.

Refer also to Section D.4.8, Climate Change, for additional comments and responses related to climate change.

Sections 3.11 and 4.11, Public Health and Safety, and Hazardous Materials, in the FEIS discuss potential risks and hazardous associated with the on-site hydrogen system, including fires.

# D.4.7 Biological Resources

The comments regarding biological resources addressed a number of specific topics. The individual comments by topic and the topic specific responses are provided in the following sections.

# D.4.7.1 Botanical Surveys

Comments: F2-30, O2-24, O6-8, O8-19, O9-21, O10-2, and P7-4.

# Sensitive Plant Species and Vegetation

The DEIS indicates that CEC staff and BLM are concerned that special status plant species may have been overlooked due to inconsistent site surveys and varying levels of botanical expertise (at pg. ES-22, C.2-3 and C.2-20). The DEIS concludes that survey results were not considered adequate to assess presence or absence of a species within the project area.

It is EPA's understanding that the proposed Project will clear vegetation along 130 foot wide parallel rows of SunCatchers. Alternating 72 foot wide rows would be left undisturbed (at pg. C.7-34). The FEIS should further discuss how these cleared rows will increase the potential for sediment transfer in the cleared areas as mentioned on page C. 7-34. The DEIS also indicates that while grading would not occur on the entire site, grading would directly affect wildlife and other special status species by removal of shrubs and herbaceous vegetation, resulting in loss and fragmentation of cover, breeding, and foraging habitat. Severe damage involving vegetation removal and soil disturbance can take from 50 to 300 years for partial recovery; complete ecosystem recovery may require over 3,000 years (at pg. C.2-28). Further, during construction, wildlife could be crushed or entombed in dens or burrows, and could collide with vehicles (at pg. C.2-29). In light of these impacts, EPA has concerns as the vegetation removal and placement of facilities in the washes would have indirect effects that have not been fully assessed (at pg. C.2-2).

#### Recommendations:

- Incorporate BIO-19 into the FEIS and ROD which requires botanical surveys to be conducted and avoidance of rare plants during project construction and operation.
- Further discuss and quantify the expected direct and indirect effects of vegetation removal and placement of facilities under each alternative.
- Discuss and propose mitigation measures for the increased sediment transfer likely to result from the cleared rows between SunCatchers.
- Discuss the impacts associated with pile driving the SunCatcher pedestals into the ground and include mitigation measures to ensure maximum avoidance of sensitive species on site during construction.
- Discuss the impacts associated with connecting the SunCatchers by gas and electrical transmission lines buried in two foot wide trenches. Include mitigation measures to ensure maximum avoidance of sensitive species on site during construction.
- Discuss alternatives to any proposed vegetation mowing that would result from a
  maintenance regime. Excess mowing may suppress vegetation through carbohydrate
  starvation, reducing its water use, and discouraging reproduction by seed. Mowing is
  likely to promote proliferation of non-native invasive weeds as well.
- Mitigation measures that result from consultation with the US Fish and Wildlife Service to protect sensitive biological resources should be included in the FEIS and, ultimately, the ROD.

## 3. Rare and Special Status Plants

As noted repeatedly in the DEIS (Biological Resources Table 2), inadequate surveys were done to evaluate the on-site rare and special status plants. As with the bighorn, absent the basic data on on-site resources, impact analysis is impossible, as is appropriate avoidance, minimization and mitigation strategies.

02-24

The SA/DEIS fails to disclose potentially significant impacts to the Peninsular bighom sheep ("PBHS") and the FTHL. Both PBHS and FTHL have been "observed on [the] project site" SA/DEIS, pp. C.2-16, C-218. PBHS is listed under the federal Endangered Species Act (61 FR 13134, 13136) and a proposed listing of FTHL is currently under review. SA/DEIS, p. C.2-40 (detailing process that led to a federal court order requiring USFWS to consider listing FTHL). The SA/DEIS also fails to disclose significant impacts to special-status plant species. The deficiencies are exemplified by the SA/DEIS' statement that the significance of biological impacts is "to be provided," in violation of both CEQA and NEPA. ES-15.

Although PBHS was observed on the Project site, the SA/DEIS claims that PBHS' use of the project site "is transitory at best" and that therefore impacts to PBHS would be less than significant. SA/DEIS, p. C.2-40. This conclusion is based solely upon BLM's and the applicant's "speculat[ion] that the [PBHS] sited [sic] at the Project location could have been flushed by OHV activity and possibly became disoriented and wandered not the project site." SA/DEIS, p. C.2-24. This is "pure speculation" that "is contradicted by the evidence regarding known [PBHS] behavior." Testimony of Dr. Vernon Bleich on behalf of California Unions for Reliable Energy "CURE"). Exhibit 400 to opening testimony for CURE, p. 4. It is quite likely that PBHS appear in the Project vicinity on a regular basis. In fact, just three days ago (May 24, 2010), a group of five adult PBHS ewes were seen about 4-5 miles west of the Project site. Comment letter by Demis Traffecanty, sent May 27, 2010, p. 1

06-8

As Dr. Bleich testified, on behalf of California Unions for Reliable Energy ("CURF"), "the SA fails to adequately analyze the potential reason(s) that PBHS were using [the Project site] and, as a result," its conclusions that PBHS appearance was a mere coincidence are "indefensible." Id. at 1, 5. The SA/DEIS also fails to identify or mitigate impacts to forage habitat, and fails to identify and mitigate the loss of 6,063 acres of bighorn sheep habitat within the CTCRA. See generally id. 5-9. The SA/DEIS' "fail jure] to adequately identify the[se] significant impacts" is unlawful. Id. at 1.

Furthermore, consultation with the Fish and Wildlife Service regarding the Project's impacts on PBHS is required. The Endangered Species Act specifies that "[1]he agency taking the action must assess the project's effects on endangered or threatened species and consult with the FWS to assure the project's compliance with the ESA." Siera Club v. Marsh., 816 F.2d 1376 (9th Cir. 1987). "The consultation process is triggered when a federal agency. ... undertakes any activity which could impact an endangered species or threaten its critical habitat." Florida Key Deer v. Stickney, 864 F.Supp. 1222, 1228 (S.D. Fla. 1994) (citing 16 U.S.C. § 1556(a)2) (emphasis in original). Here, as discussed above, the Project "could" affect the PBHS. Thus, consultation with FWS is mandated.

Scott Cashen, an expert biologist, testified as to the Project's undisclosed impacts on special status plant species and the FTHL. Exhibit 429 to opening testimony for CURE. In his professional opinion, the SA/DEIS contains "inadequate information on the presence of special-status plant species within the Project area" and "as a result ... the SA/DEIS cannot conclude [that] proposed mitigation

would reduce Project impacts" on these species "to less than significant levels." Id. at 2; see also mitigation measure BiO-19, SA/DEIS pp. C.2-97 through 100. The size of the buffer zone for special-status plant species is unknown and likely insufficient. Id. at 2-3. Mr. Cashen also testified that the proposed mitigation measures to mitigate impact to non-listed species are unenforceable and that impacts to these species would be significant as well. Id. at 3-4. Unless all required plant surveys are completed before the mitigation measures are adopted, it is impossible to tell whether the mitigation measures will be effective. Id. at 5. Moreover, fall surveys for special-status plant species have not yet been prepared. Id. at 6. Because of these informational inadequacies, the SA/DEIS is legally deficient.

With regard to the FTHL, the SA/DEIS contains no conclusion regarding the Project's impacts. 
"[S]taff is in the process of evaluating if the use of compensation funds is sufficient for CEQA 
mitigation." SA/DEIS, p. C.2-61. As discussed above, the DEIS itself is required to include this 
information. There is a "possibility that thousands of FTHL will die as a result of the Project"; a 
population of this size is "roughly half the size of the population within the entire West Mesa MA." 
Exhibit 429 to opening testimony for CURE, pp. 8-9. Additionally, "the loss of 6.653 acres of habitat" 
that would accompany the Project "represents a tremendous impact" on the FTHL, which "is proposed 
for listing due to habitat loss." These impacts must be mitigated before the Project is approved, not 
after.

The Project also "would cause considerable fragmentation to the remaining FTHL habitat." At at 9. Nonetheless, "[t]he SA/DEIS proposed no mitigation for impacts to FTHL movement between MAs." At at 11. The SA/DEIS conclusion that such mitigation is infeasible is unsupported by the record. Id. There is no basis to assume that a corridor underneath 1-8 would be impractical. Id. Additionally, the SA/DEIS contemplates that the FTHL "would be moved out of harm's way," SA/DEIS at C2-55, but this strategy "only partially addresses the [FTHL's] survivorship" and, accordingly, only partially mitigates this impact. Exhibit 429 to opening testimony for CURE, p. 12. CEQA requires these potentially significant impacts to be mitigated and the SA/DEIS failure to does ois unlawful.

Finally, the compensatory mitigation measure, BIO-10, also fails to fully mitigate habitat loss. This measure would allow current habitat to be replaced by "poor quality habitat." SA/DEIS, p. C.2-85. As such, the SA/DEIS fails to "prevent[] a net loss of FTHL habitat," as claimed. Exhibit 429 to opening testimony for CURE, p. 14.

# Flora / Fauna

 Fall surveys are required for full compliance. 2010 Fall bloom should be exceptional due to a wet year after numerous dry years. The Fall survey is now proposed to take place after public review which eliminates any review and comment on impacts and proposed mitigation. .. ..

O6-8

- Any historic information for bloom after the 1976 Hurricane Kathleen should be Incorporated since many desert plants can remain dormant unless and until the right amount of rain falls at the right time. See photo below of desert Prickly Poppy bloom after Hurricane Kathleen.
- Jim Andre, a rare plant expert and director of UC Riverside's Sweeney Granite Mountains Desert
  Research Center in the Mojave National Preserve, has stated 40 % of desert plants bloom in the
  fall.
- The presence of bighorn sheep on-site cannot be dismissed by stating they were flushed out by OHV activity. Flushed out from where? Wilderness and protected areas?
- · What does this say about BLM management abilities?
- Previous BLM plans for the area recognized the project site as bighorn habitat.
- · The on-site presence of pregnant females during lambing season begs further investigation.



O8-19

- What are the potential impacts of having power collected from the SunCatchers to go through a 600 V underground power lines which apparently will collect from the units leaving much of the area not only disturbed by roads, but also by the underground powerlines.
- What are the potential adverse impacts of this amount of cumulative disturbances, from multiple projects, to the soils used by burrowing small mammals and lizards. This disturbance is in addition to the 27 milles of paved arterial roads, 14 milles of unpaved perimeter roads, and approximately 234 miles of unpaved access roads associated with the proposed IV Solar site (SA/DEIS ES-55 for a total of 275 miles of roads.
- · Cumulative impacts to bighorn sheep habitat and corridors
- Indirect and cumulative impacts associated with noise and vibrations that travel through the soil and air.
- We disagree with applicant expert's position that I-B represents a barrier for FTI IL.

# E. RARE PLANTS ON PROJECT SITE

The DEIS acknowledges that the types and quantities of rare plants had not been determined at the time that the DEIS was published due to the inadequacy of the Applicant's botanical survey efforts. The DEIS proposed that surveys be conducted for special status plants in the spring and fall of 2010. As a result, DEIS correctly concludes the applicant's botanical surveys have not provided an adequate basis for analyzing potential Project impacts.

09-21

Although the SA/DEIS attempts to analyze the impacts and formulate mitigation measures before adequate survey data are obtained, the analysis and mitigation may change after the additional survey efforts are better able to identify impacts to rare plants. The baseline data that makes up the affected environment should be shared with the public and the public should have the opportunity to comment. Without this information, the affected environment is inadequately defined in the DEIS.

Inadequate Plant Studies: We agree that the plant surveys conducted in 2007 and 2008 are not adequate to determine the presence or absence of special plant species.

CNPS believes that the applicant should not have developed it's list of possible listed species from known occurrences in the immediate area of the project. We feel that the list should have been compiled from known occurrences from the entire Colorado Basin, a much larger geographical area. We believe a list of sensitive species from the entire Colorado Basin, excluding terrain types such as rocky slopes, would contain approximately 65 species and would be the minimum adequate list for the project.

O10-2

The problem with the Applicant's method of using sensitive species known to occur in the project area is that Imperial County is not documented well. Imperial and San Diego Counties are approximately the same size. However, the California Consortium of Herbaria contains 117,000 specimens – meaning that the county has been widely surveyed over many years, wet and dry. In contrast, Imperial County has only 9,800

specimens in the California Consortium of Herbaria. It's reasonable to conclude that any existing database could not reliably predict the presence of special status species in Imperial County or that such databases could render accurate lists. The result is that surveys might not be scheduled and conducted at time when sensitive species, especially annuals, would be present.

We argue that the Applicant's special status species lists are of unknown reliability and cannot fulfill their intended use since they apparently were not derived from sensitive species known to occur in the entire Colorado Basin. We also argue that the 2008 botany survey reports are of limited value for the same reasons and may be inadequate.

O10-2

We believe that additional surveys should be conducted taking into account the entire Colorado Basin so that project impacts are known.

Additionally, the executive summary indicates that BLM declared special-status plant surveys to be inadequate. This is unacceptable for inclusion into a Draft Environmental Impact Statument. How can decisions be made by land managers and interested parties if the information provided is inadequate? This Draft EIS should not be allowed to nove forward unit compiles information is provided by qualified individuals in the field.

P7-

Response: These comments raised concerns about the adequacy of the botanical surveys conducted for the Imperial Valley Solar (IVS) project site in 2007 and 2008. The United States Bureau of Land Management (BLM) shared those concerns and the applicant conducted additional surveys in spring 2010. The applicant will also conduct late summer/early fall surveys in 2010 to address any special-status species expected to occur following monsoonal storm events that typically occur in the late summer/early fall. Late summer/early fall storms typically result in blooming of plant species that may not occur during spring.

Two rounds of surveys were conducted in spring 2010 by botanists familiar with desert flora and pursuant to accepted survey methodology. The resumes of the botanists conducting botanical surveys were reviewed by BLM biologists. Three special-status species were observed during those spring surveys: brown turbans (Malperia tenuis), Harwood's milk vetch (Astragalus insularis var. harwoodi), and Wiggins' croton (Croton wigginsii). Brown turbans is not Federally listed as threatened or endangered and is not on the BLM sensitive plant species list. Brown turbans is listed by the California Native Plant Society (CNPS) as 2.3 (rare, threatened, or endangered in California, but more common elsewhere/not very threatened in California [low degree/immediacy of threats or no threats known]). Harwood's milk vetch is not Federally listed as threatened or endangered and is not listed as a BLM sensitive plant species. Harwood's milk vetch is listed by the CNPS as 2.2 (rare, threatened, or endangered in California, but more common elsewhere [fairly threatened in California moderate degree/immediacy of threat]). Wiggins' croton is not Federally listed as threatened or endangered, but is listed as a BLM sensitive plant species. Wiggins' croton is listed as 2.2 by the CNPS.

# D.4.7.2 Avoidance of Aquatic Resources

Comments: F2-5, F2-9, F2-12, F2-13, F2-14, F2-15, F2-16, F2-18, F2-20, F2-23, S2-3, O2-34, O4-3, O4-4, O6-9, O8-6, O9-17, O9-23, O9-52, O9-53, O9-54, and O9-55.

We are particularly concerned about the potential impact of the proposed Project to waters of the United States, which serves as the primary basis for our "EO" rating. The Project proposes discharges of dredged or fill material that would climinate 165 acres of jurisdictional desert streams and tributaries to the New River and the Salton Sea. As proposed, these discharges may result in substantial and unacceptable impacts to "aquatic resources of national importance" (ARNI). Further, the Project proposes placement of approximately 5,000 of the Project's 30,000 SunCatchers within areas subject to flash flooding and erosion. These placements raise environmental as well as engineering and financial sustainability concerns due to increased erosion, migration of channels, local secur, and potential destabilization and damage to valuable facilities and equipment. Through continued coordination on the Project, we have been encouraged by recently proposed design modifications which, if developed and approved, could reduce immacts to aquate resources.

F2-5

Given the numerous outstanding concerns that have been raised by EPA as well as many other stakeholders on the Project as proposed, EPA strongly encourages BLM to address comments provided on the subject DEIS in the FEIS. The FEIS should also demonstrate that the proposed Project is the Least Environmentally Damaging Practicable Alternative (LEDPA), and identify measures that could mitigate the impacts. It should include a robust discussion of all avoidance and mitigation measures proposed for the Project and include an outline of the requirements of a compensatory mitigation plan.

F2-9

#### Aquatic and Biological Resources

#### Compliance with Clean Water Act Section 404

The DEIS discloses that 878 acres of ephemeral waters of the United States (Waters) are located on the Project site (at pg. E5-29). These Waters are within the Salton Sea Transboundary Watershed and flow to the Westside Main Canal and Coyote Wash, ributaries to the New River which drains to the Salton Sea. These Waters provide sediment transport and deposition downstream, energy dissipation, ground water recharge, hydrologic and geochemical connectivity, as well as ecosystem connectivity to the New River and the Salton Sea.

F2-12

According to the DEIS, the Project, as proposed by the Applicant, would result in a loss of approximately 165 acres of Waters that would be subject to permanent impacts, 5 acres of temporary impacts, and 13 acres of indirect impacts (at gs. C.2-2). The aquatic ecosystem will be dramatically altered by this Project through direct habitat loss and degradation, changes to

1

hydrological processes, likely increase in the velocity and volume of stormwater flows, sedimentation, and a potential increase in the discharge of pollutants from Project construction and operation. In addition, the proposed Project will degrade the functions of waters through the placement of road crossings, SunCatchers and fencing. The permanent loss of approximately 19% of all on-gite waters, in addition to indirect impacts, is likely to:

F2-12

F2-13

- · destroy habitat for wildlife;
- · cause a potentially irreversible loss of biodiversity and ecosystem stability; and,
- · degrade water quality, modifying sediment transport and flows.

The purpose of Section 404 of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of waters by prohibiting discharges of dredged or fill material that would result in avoidable or significant adverse impacts on the aquatic environment. EPA's Federal Guidelines for Specification of Disposal Sites for Dredged or Fill Materials (40 CFR 230), promulgated pursuant to Section 404(b)(1) of the CWA (Guidelines) provide the standards by which proposed discharges must be evaluated. The burden to demonstrate compliance with the Guidelines rests with the permit Applicant. The Guidelines contain four main requirements that must be met to obtain a Section 404 permit:

- a) Section 230.10(a) prohibits a discharge if there is a less environmentally damaging practicable alternative to the proposed Project.
- b) Section 230.10(b) prohibits discharges that will result in a violation of water quality standards or toxic effluent standards, jeopardize a threatened or endangered species, or violate requirements imposed to protect a marine sanctuary.
- c) Section 230.10(c) prohibits discharges that will cause or contribute to significant degradation of waters. Significant degradation may include individual or cumulative impacts to human health and welfare; fish and wildlife; ecosystem diversity, productivity and stability; and recreational, aesthetic or economic values.
- d) Section 230.10(d) prohibits discharges unless all appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

Requirements 230.10(a) and 230.10(d) are discussed further below.

#### Recommendation:

· Discuss and demonstrate compliance with the Guidelines in the FEIS.

Analysis of Alternatives - 40 CFR 230.10(a)

In order to comply with the Guidelines, the Applicant must comprehensively evaluate a range of alternatives to ensure that the "preferred" alternative is the Least Environmentally Damaging Practicable Alternative (LEDPA). Identification of the LEDPA is achieved by performing an alternatives analysis that estimates the direct, indirect, and cumulative impacts to jurisdictional waters resulting from a set of on- and off-site project alternatives. Project

alternatives that are not practicable and do not meet the project purpose are eliminated. The LEDPA is the remaining alternative with the fewest impacts to aquatic resources, so long as it does not have other significant adverse environmental consequences. Only when this analysis has been performed can the applicant and the permitting authority be assured that the selected alternative is the LEDPA 440 CFR 230.1061.

Over the course of the past several months, we have been working collaboratively with the Corps, fellow resource and regulatory agencies, and the Applicant on the proposed Project. On April 23, 2010, EPA met with the Applicant and the Corps to discuss new alternatives proposed by the Applicant to reduce impacts to aquatic resources. We appreciate the Applicant's effort toward compliance with the Guidelines. On May 12, 2010, EPA submitted comments to the Corps identifying our concerns with the Public Notice (Permit for Application). Given the importance of the desert ephemeral washes, which are tributaries to the New River and the Salton Sea, and the limited information currently available regarding the Project—particularly related to practicable alternatives with fewer impacts to aquatic resources—EPA determined that the project may result in substantial and unacceptable impacts to "aquatic resources of national importance" (ARNI), and identified the permit action as a candidate for clevation to the Corps' and EPA's respective headquarters. The ephemeral waters at the Project site have been designated as ARNI due the hydrologic, higogeochemical, and habitat functions that directly affect the integrity and functional condition of waters downstream at the New River and the Salton Sea.

Based on our review of the DEIS and the Public Notice, additional information, including an offsite alternatives analysis, analysis of impacts associated with site design (e.g., perimeter fencing and roads), and onsite alternative designs (e.g., future development of in holdings, additional avoidance through removal of SunCatchers in drainages, alternative locations of substation, maintenance buildings, holding areas and assembly tents) is necessary in order to ensure authorization of the LEDPA.

At this time, the DEIS and the Public Notice provide minimal consideration of practicable alternatives in light of costs, logistics, and existing technology as required under the Guidelines, and, as a result, we cannot determine the extent to which each alternative is practicable and should be considered as the LEDPA. The DEIS presents four on-site alternatives including the Applicant's proposed 750 MW full build-out alternative, two 'Drainage Avoidance' alternatives, and a 300 MW reduced project size alternative. Additionally, the DEIS contains an evaluation of three off-site alternatives, however, these off-site alternatives are included for CEQA purposes only and are eliminated from further consideration under NEPA for their failure to meet BLM's purpose and need for the proposed Project (at pg. B.2-2). A full analysis of off-site alternatives be given full consideration under NEPA and to demonstrate compliance with the Guidelines. The DEIS indicates that all three of the off-site alternatives would have less severe cultural and visual impacts than would occur at the proposed site, and two of the three alternative sites (located on disturbed lands) would also have reduced impacts to

<sup>&</sup>lt;sup>1</sup> This letter follows the field level procedures outlined in the August 1992 Memorandum of Agreement between the EPA and the Department of the Army, Part IV, paragraph 3(a) regarding section 404(q) of the Clean Water Act.

biological resources (at pg. B.2-1). As previously mentioned, EPA supports the consideration of off-site alternatives on disturbed lands, including fallow agricultural lands, and other candidate parcels that are currently under consideration by BLM as a Solar Energy Study area.

As part of determining the LEDPA, the FEIS should further justify the elimination of the 300 MW Phase I alternative may be practicable and less environmentally damaging to jurisdictional waters when compared to the proposed Project alternative. It is our understanding that the Applicant has a Power Purchase Agreement with SDG&E to provide 300 MW of power once on-line. The FEIS should confirm that this is the case. In light of the contingency of Phase II of the Project upon the Sunrise Powerlink Transmission Line (SPTL) (at pg. B.1-19), it appears that the 300 MW alternative may have been considered by the Applicant or SDG&E to have independent utility. Additionally, SPTL appears to be further delayed based on the recent decision by the Cleveland National Forest Service Supervisor to open up the project for further public review. The FEIS should also discuss the implications to the proposed Project if the SPTL is not built. As such, a single 300 MW plant would be considered an on-site less environmentally damaging, practicable alternative, pursuant to the Guidelines. Finally, the FEIS should analyze a 300 MW alternative in a design configuration that avoids all impacts to Waters on-site.

Recommendation:

 EPA recommends that BLM include analyses of on- and off-site alternatives in the FEIS to support the identification of the LEDPA. Sufficient detail should be provided to allow for meaningful comparisons.

Minimize Potential Adverse Impacts, and Mitigation - 40 CFR 230.10(d)

Pursuant to the Guidelines, mitigation of project impacts begins with the avoidance and minimization of direct, indirect, and cumulative impacts to the aquatic ecosystem, followed by compensatory measures if a loss of aquatic functions and/or acreage is unavoidable. Compensatory mitigation is, therefore, intended only for unavoidable impacts to waters after the LEDPA has been determined. For this reason, it would be premature to examine in detail any mitigation proposal before compliance with 40 CFR 29.10 (2a) is established.

The DEIS has not clearly demonstrated that all practicable measures to minimize undividable impacts to potential waters of the United States have been incorporated into the proposed project design. For example, according to an April 26, 2010 Preliminary Draft 404B-1 Alternatives Analysis For the Imperial Valley Solar Project, all on-site design alternatives utilize the same location and footprint for the Main Service Complex, which results in 18 acres of permanent impacts to Waters. The FEIS should evaluate alternative locations, as well as the reconfiguration or redesign of building footprints within the Main Service Complex, to avoid jurisdictional waters. The FEIS should also discuss alternate designs that reduce the size of holding areas, and consider minimizing the number of temporary assembly tents required to outfit the facility. We note that the DEIS appears to indicate that only one assembly building is necessary (at p.e. C,7-14).

F2-14

Similarly, the FEIS should fully describe the potential for avoiding redundancy of arterial and perimeter roads, as well as further elimination of SunCatchers in drainages, which could result in avoidance of jurisdictional waters. The FEIS should provide additional details, including acres of Waters avoided, as a result of these avoidance measures. Avoidance of sensitive plant species should be an important consideration in the design and configuration of the SunCatcher layouts as well.

F2-16

Further, the proposed Project places 5,000 SunCatchers within areas subject to flash flooding and erosion (at pg. ES-28). The DEIS later indicates that this may be an underestimate of the actual number of SunCatchers that will be subject to flooding (at pg. C.7-13). SunCatchers within the floodplain could be subject to destabilization by stream scour (at pg. C.7-1). Additionally, impacts to soils related to wind erosion and runoff erosion are potentially significant, as are impacts to surface water quality from sedimentation and the introduction of foreign materials, including potential contaminants, to the project area (at pg. C.7-64). For all of the above reasons, the FEIS should fully utilize the inherent flexibility of the SunCatcher technology to fully avoid all impacts to jurisdictional waters. The FEIS should incorporate evaluation of alternative SunCatcher designs that are currently under discussion through the CWA 404 moress.

F2-18

Finally, the DEIS provides no assessment of the cumulative impacts on waters of the United States that are likely to result from the proposed Project and other proposed energyrelated projects in the area. In short, the Project, as proposed, does not comply with EPA's Guidelines, nor with the Corps' and EPA's regulations governing mitigation under Section 404 of the CWA.<sup>2</sup>

F2-20

#### Recommendations:

Discuss the steps that will be taken to avoid and minimize impacts to waters of the
United States. To the extent any aquatic features that could be affected by the Project
are determined not to constitute waters of the United States, EPA recommends that
the FEIS characterize the functions of such features and discuss potential mitigation.

F2-20

 Include in the FEIS a mitigation plan for unavoidable impacts to waters of the United States, as required by Corps and EPA regulations. The DEIS does not provide detailed information about the effects of fencing on drainage systems. The DEIS does indicate that appropriate fencing is still being determined in coordination with regulatory and resource agencies to protest esnsitive ecological areas and address storm flows in washes (at B.1-6). In this region, storms can be sudden and severe, resulting in flash flooding. Fence design must address hydrologic criteria, as well as security performance criteria. The National Park Service recently published an article<sup>3</sup> on the effects of the international boundary pedestrian fence on drainage systems and infrastructure. We recommend that BLM review this article to ensure that such issues are adequately addressed with this Proiect.

F2-23

#### Recommendation:

 Provide more detailed information about fencing and potential effects of fencing on drainage systems within the FEIS. Ensure that the fencing proposed for this Project will meet appropriate hydrologic performance standards. F2-23

Biologically, the loss of over 6,000 acres of habitat for the proposed-endangered Flat-tailed Horned Lizard should be considered significant and will require costly mitigation according to formulas derived as part of the Flat-tailed Horned Lizard Conservation Strategy. The loss of over 6,000 acres of habitat for burrowing owls (a California Species of Special Concern), likewise will need to be mitigated. The presence of individuals of the State- and federally-listed endangered Peninsular Range population of the Desert Bighorn Sheep will also require mitigation as a result of this project. Some 312 acres of desert washes and waterways would be impacted by the proposed project and require mitigation under the U.S. Army Corps of Engineers and California Department of Fish and Game guidelines. Numerous other sensitive plant and animal species will also need to be mitigated.

S2-3

## 2. Surface Water Impacts:

The SA/DEIS identifies impacts to surface drainages and washes on the proposed project site. However, the DEIS is confusing about the actual impact. At C.2-2 the DEIS states that the project impact "would amount to a loss of approximately 165 acres of permanent impacts, 5 acres of temporary impacts, and 13 acres of indirect impacts to Waters of the U.S. and approximately 312 acres of permanent impacts to jurisdictional state waters." However at C.2-56 the SA/DEIS states "Construction of the SES Solar Two would result in permanent impacts to 840 acres of jurisdictional state waters." At C.7-2 the DEIS states that "The U.S. Army Corps of Engineers has determined that 840 acres of the project site are jurisdictional waters of the U.S under Clean Water Act (CWA) Section 404, all of which would be permanent impacts." The substantial inconsistency in the numbers of acres of impacts to onsite waters in the documents suggests that a comprehensive review of the actual impacts tows and completed.

Furthermore, the DEIS notes that "The mitigation requirements for the CWA 404 permit are currently unresolved." DEIS at C.2-2. While it is understandable that the mitigation is unresolved due to the apparent lack of clarity on the actual impacts, the DEIS fails to inform the public and decision makers as to the actual impact and the feasibility of mitigating those impacts. The Army Corps has proposed alternatives that significantly change the impact not only waters of the U.S., but also the biological resources (DEIS at C.2-2). While the DEIS generally recognizes that either of these alternatives would reduce the impacts to the biological species and on-site drainages, the alternatives analysis does not quantify how much the impacts would be reduced. As stated in the DEIS, "Currently, staff's proposed conditions of certification would not be sufficient to mitigate the potential impacts to biological resources to less than significant levels under CEQA until conditions required by the USACE for a federal Clean Water Act 404(1/b) Impact Analysis are known." DEIS at 2.2-64, C.2-66, C.2-68, Clearly not enough information has been provided to identify impacts, much less appropriate mitigations. On this basis as well the DEIS fails as an informational document.

02-34

Our principal concerns with the impacts of the Solar Two project at this time relate to three biological resources: Peninsular bighorn sheep which are federally endangered; the flat-tailed homed lizard, currently proposed for federal listing as threatened; and water resources and the habitat values associated with these resources in a desert environment, see "U.S. Army Corps of Engineers Public Notice/Application No.: SPL-2008-01244-MLM, pg. 11". In addition, we have identified several other issues requiring more robust analysis, namely the use of hydrogen and the potential for project phasine.

Biological Resources: The DEIS treatment of the observance of federally endangered bighom sheep on the project site is particularly deficient. Merely attributing the occurrence of a ewe group of bighom sheep to a "transient occurrence" without further investigation and analysis is inadequate, id. ES-21. The DEIS indicates that the project site provides marginal foraging habitat, id. C.2-18. Under varying precipitation conditions and levels of vegetation growth, marginal foraging habitat may supply an important part of the sheep's diet and could continue to attract foraging activity on an ongoing basis.

The document indicates that Department of Fish and Game biologists, and biologist for the project applicant "have speculated that the bighorn sheep sited at the project location could have been flushed by OHV activity and possibly became disoniented and wandered onto the project site," id. C.2-24. While OHV activity in the area can certainly affect movement patterns of sheep, this is not the only possible explanation for the presence of the ewe group on the site, and the DEIS must not assume that it is. The final EIS must analyze avoidance, minmization and mitigation measures based on the assumption that bighorn sheep will continue to use the site on an ongoing basis for forage as their previous visitation suggests rather than simply dismiss their presence as an anomaly. For example, we would suggest consideration of concrete measures to mitigate for loss of habitat, such as purchase of replacement lands, as well as ongoing monitoring on the site to ensure that any subsequent usage by the sheep is well-documented and any necessary modifications to operations are made.

A second species of concern found on the project site is the flat-tailed horned lizard. As noted above, this species is currently being considered for listing as federally threatened, id. ES-12. Estimates of population in the project area vary w.dely from 2,000 to 5000, id. C.2-22. Greater specificity regarding this population is needed to fully understand possible impacts to this species especially in the context of the pending listing.

The third area of concern related to biological resources is the impacts to water resources, in particular jurisdictional water of the United States and the state of California and biological values

04-4

04-3

associated with those waters. The Army Corps of Engineers has published detailed comments on the impacts that the proposed project and alternatives identified in this DEIS would have on the Westside Main Canal and the Coyote Wash, water resources which are deemed juisdictional waters of the United States. Given the searcity of such water resources in the desert environment; it is critical that the BLM fully consider the comments provided by the Army Corps. The D EIS includes the alternatives proposed by the Army Corps which supports a robust and full analysis of real alternatives.

In addition to the alternatives analyzed in the DEIS, we understand that a variation on the project has been proposed to the Army Corp based on their concerns—this new proposal apparently would reduce the 750 MW proposal to a 709 MW facility. This modification may reduce impacts to water resources and must be presented to the public along with a full analysis of its impacts in order to permit its selection.

Water resources are also important with regard to the project's on-site water use — an important factor to analyze in the review of all solar projects proposed for desert environments. The DEIS does not indicate what source of water will be used if the upgrades to the Seeley Wastewater Treatment Plant are not complete prior to water being needed at the project site for construction, operations and maintenance — and in fact we understand that they will not.

We understand through documents available on the California Energy Commission website that the applicant has obtained purchase rights to 40 arer feet per year of water under an existing permit for water from a single source aquifer (see Supplement to the Imperial Valley Solar Application for Certification dated May 2010). These documents indicate that there will be no change in use at the well which has been operated by the Dan Boyer Water Company as a source for commercial water under a permit since the 1950s. CEC staff are still in the process of reviewing these supplemental materials. Regardless of the CEC determination, the issue of interim water use must be acknowledged and additises of in the EIM as IEM as well.

Of significant concern overall regarding impacts to biological resources is the statement that, 
"With implementation of staff's proposed conditions of certification, staff is still uncertain if 
construction and operation of the proposed SES Solar Two Project would comply with all federal 
state and local LORS relating to biological resources," id. ES-23. The DEIS indicates that this 
uncertainty is due to the lack of information regarding impacts to, and mitigation for, impacts to 
waters of the U.S. id. ES-23. We expect to see greater certainty related to impacts to these waters 
of the U.S. and by association overall biological resources in the final EIS. In addition, we note 
that plant surveys have been deemed insufficient by staff and per staff recommendations in the 
DEIS are to be completed in the spring and fall of 2010 id. C.2-3

04.4

project." SA/DEIS, p. C.7-3. Yet the Project applicant has recently modified the Project so as to satisfy its water needs with groundwater. This substantial change must be recognized in the DEIS.

The DEIS' failure to acknowledge that the Project will use groundwater leads to the second inadequacy: the availability of this water, and the impacts of its use, are unknown because neither has been studied. As a result, it is impossible for members of the public to determine whether the Project's water needs can actually be satisfied in this manner. The environmental impacts of such use also have yet to be ascertained. CEC staff has noted that "the amount of water identified for project use . . . exceeds the permitted amount of groundwater extraction for the well." Staff Comments on Schedule Impacts of AFC Supplement, received May 17, 2010, p. 1. Furthermore, it is unknown how long groundwater will be used. The DEIS must be revised to include this critical information.

O6-9

Third, the impacts that the Project will have on waters of the United States is unknown. The Project has the potential to cause massive amounts of runoff and erosion. Whether or not these impacts will be significant has yet to be determined because the Project applicant failed to include sufficient information in its application "to resolve uncertainties regarding the ability of the applicant-proposed measures to reduce sedimentation and stream morphology impacts to less than significant." The Project's consistency with section 404 of the Clean Water Act "cannot [be] determine[d] at this time." SADEIS, p. C.7-66.8 This information must also be included in the SADEIS.

# **Alternative Drainage Avoidance:**

- The Army Corps Least Environmentally Damaging Practicable Alternative analysis must be completed before the close of public comment and / or project approval so those decisions and proposed mitigation measures can be reviewed by the decision makers and the public.
- All washes should be avoided, they are nature's storm channels that serve multiple services and species.
- A hybrid of Alternative Figures 1 B & 1C should also be considered for a much reduced project size and degree of impacts to critical water ways and sensitive resources.
- I personally visited the project site on April 25th, in the company of other witnesses, and found flood debris lodged about 3 feet up in Smoke Trees in one of the many desert washes. There was obvious evidence of flooding in excess of 1 foot in many of the desert washes.
- This flood level evidence is contrary to testimony of the applicant witness Dr Chang where he stated that his modelling showed flood waters were not expected to exceed approximately 1 foot. When I approached Dr. Chang after his testimony to inform him our information, he just smiled and said "that's interesting".
- Those who know this desert, and others know, too, that desert storms can be unpredictable and devastating. Many of us have seen white caps on flood waters in local desert washes. It is awe inspiring and can be very dangerous.

08-6



Smoke Tree flood debris near top right of cane. Photo by Tom Budlong, taken on-site 4-25-10).

The photo below shows aerial view of flood damage to Ocotillo from Hurricane Kathleen in 1976 that took out sections of I-8 and the railroad near Ocotillo. Sections of Ocotillo neighborhoods stand starkly vacant in the flood path. Ocotillo sits approximately 3 miles west of the project site. (photo source: http://doi.org/10.1016/j.com/1



O8-6

# d. Indirect Effects on Washes

The DEIS identified 183 acres of direct impacts to waters of the United States. However, indirect impacts must also be identified and mitigated. The DEIS failed to properly analyze indirect impacts to Waters of the United States.

09-17

# V. THE DEIS MUST DISCLOSE AND ANALYZE ALL POTENTIALLY SIGNIFICANT IMPACTS OF THE PROPOSED ACTION

The environmental consequences of a proposed action must be described in the DEIS. This section forms the scientific and analytic basis for the comparisons of the proposed action and alternatives. NEPA regulations require that this section of an EIS describe any direct, indirect and cumulative adverse environmental effects which cannot be avoided should the proposal be implemented; the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented.<sup>57</sup> The DEIS must also describe possible conflicts between the proposed action and the objectives of Federal, regional, State, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned.<sup>58</sup>

09-23

The DEIS fails to analyze a number of potentially significant biological, cultural, visual, and hydrological impacts from the proposed action. The DEIS also fails to examine the conflicts between the proposed action and the Clean Water Act.

# B. THERE HAS BEEN NO OFFSITE ALTERNATIVES ANALYSIS AS REQUIRED BY THE CLEAN WATER ACT

The DEIS disclosed that BLM eliminated all offsite alternatives from further study because they would be inconsistent with BLM's purpose and need for the action under consideration and, because the offsite alternatives 09-52

are not under BLM jurisdiction, BLM would have no discretionary approval authorities for those alternatives, 141

BLM's interpretation of its responsibility to study alternatives is not only inconsistent with the plain language of the regulations implementing NEPA, but it violates the requirements of the Clean Water Act.

NEPA regulations require that all reasonable alternatives should be evaluated, including reasonable alternatives not within the jurisdiction of the lead agency. 142 An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable. 143

More importantly, the BLM has a separate mandate to analyze a reasonable off-site alternative: the Clean Water Act. For non-water dependent projects such as the proposed action, the Clean Water Act presumes that a practicable alternative exists and the burden to clearly demonstrate otherwise is on the applicant. 144 Practicable is defined as "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." 145 The presumption that a practicable alternative exists is very strong. 146 Moreover, all such practicable alternatives that do not involve a discharge into a special aquatic site are presumed to have less adverse impacts, unless clearly demonstrated otherwise. 147 Because this Project is clearly not water-dependent, the BLM has a legal obligation to study one or more offsite alternatives that do not involve a discharge of dredge or fill into waters of the United States.

# VIII. THE PROPOSED PROJECT DOES NOT COMPLY WITH SECTION 404 (b) OF THE CLEAN WATER ACT

The Project, as described in the DEIS, violates Section 404(b) of the Clean Water Act which prohibits avoidable discharges of dredge or fill into waters of the United States. The Project will result in the placement of SunCatcher units and related infrastructure directly into the desert streams

O9-52

09-53

on the Project site. As the EPA stated in its May 12 letter to the USACE regarding the Imperial Valley Project,

[T]he 878 acres of jurisdictional desert streams on the project site are a critical part of the Salton Sea Transboundary Watershed...the streams at this project site perform critical hydrologic, biogeochemical and habitat functions directly affecting the integrity and functional condition of the New River and Salton Sea, both listed as impaired water bodies under the Clean Water Act. As proposed, the Project's discharges may result in substantial and unacceptable impacts to amatic resources of national importance.

09-53

Therefore the DEIS must be revised to include an analysis of this reasonable alternative.

# A. THE BLM MAY ONLY APPROVE THE LEAST ENVIRONMENTALLY DAMAGING PRACTICABLE ALTERNATIVE

The Project as described in the DEIS would place SunCatcher units and road crossings directly into ephemeral washes that have been determined to be waters of the U.S. and waters of the state. Approximately 840 acres of the Project site are waters of the U.S. subject to USACE jurisdiction under Section 404 of the Clean Water Act. According to USACE's notice, SunCatcher units, support buildings and road crossings directly impact 165 acres the washes.

The Clean Water Act implementing regulations are clear: "No discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." 118

09-54

As discussed above, there is a presumption of a less damaging alternative that does not involve the release of dredge and fill into waters of the United States if the Project is not water dependent, such as this Project. The burden to clearly demonstrate otherwise is on the applicant. Under the Corps' Clean Water Act Guidelines, a Section 404 permit cannot be issued "unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge [of fill material] on the aquatic ecosystem. 149

Because there is a presumption that a less damaging practicable alternative than the Project as proposed exists and should be implemented. the Corps must identify the least environmentally damaging practicable alternative ("LEDPA"). No In recent testimony at the Energy Commission, the Applicant concluded that there is a less environmentally damaging alternative that is practicable and distinct from the proposed project. The Applicant submitted a revised Project design for a 706 Mw project. The Applicant's proposal does not even come close to reducing Project impacts to ensure no overall net loss of wetland functions and values to comply with the unambiguous mandate to only permit the LEDPA. Regardless, this alternative was not analyzed in the DEIS.

09-54

# B. THE LEAST ENVIRONMENTALLY DAMAGING ALTERNATIVE IS A HYBRID OF DRAINAGE AVOIDANCE ALTERNATIVE 1 AND 2

Even if the BLM and the other agencies could mitigate the Project's significant impacts and ensure consistency with applicable laws, which they cannot, the Project Applicant has failed to set forth the LEDPA to date. The DEIS has been developed in the absence of the LEDPA determination and the DEIS does not provide sufficient data to derive the LEDPA because the DEIS largely dismisses the Project's impacts on the hydrological values in the Project area. For example, as mentioned above, the technical analysis failed to account for key components of the landscape (i.e., desert pavement, cryptobiotic crusts) as they influence soil and water processes. Moreover, the DEIS did not address offsite impacts (i.e., impacts to water quality in the Westside Main Canal, New River and Salton Sea), and did not address the long-term impacts of the project under a changing climate.

O9-55

However, even without a complete analysis, it is clear that the proposed Project would result in significant impacts by changing the hydrologic processes on and off the site. The Project will increase soil erosion, causing adverse changes to the morphology of the washes, and create hazards by placing the solar dishes directly in the washes, resulting in additional downstream hazards from chemicals that would be released when solar dishes are damaged in flood events. The Project also will significantly impact the biological resources in the Project area including the plants and animals that rely upon the New River and Salton Sea. These species include federally endangered peninsular bighorn sheep, federally-proposed threatened flat-tailed horned lizard, a variety of sensitive rare plant species, burrowing owl, federally endangered Yuma clapper rail and many others.

Drainage Avoidance Alternative 1 and 2, while reducing some environmental impacts, do not go far enough to establish the LEDPA because another alternative would be practicable and economically feasible and would further reduce environmental impacts, as described below. When the effects of the Project on the hydrology and biological values are taken into account, a hybrid alternative that combines elements of Drainage Avoidance Alternative #1 and Drainage Avoidance Alternative #2 is warranted. Therefore, the LEDPA is a hybrid alternative that limits the Project output to 300 Mw and is configured to avoid the major washes with a reduced project footprint.

Practicable is defined in the EPA's Clean Water Act regulations as "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." The presumption of a practicable alternative is very strong. The presumption for a non-water dependent project that a practicable alternative exists requires that an applicant make a persuasive showing concerning the lack of alternative.

A 300 Mw alternative is practicable when cost, existing technology and logistics are taken into account. The clearest and most convincing evidence of this is the agreement the Applicant has entered into with San Diego Gas and Electric ("SDG&E") regarding the sale of power generated by the Project. SDG&E has a contract to purchase 300 Mw, an option to purchase an additional 300 Mw and a right of first refusal on the final 150 Mw.

Therefore, the Applicant has contractually committed itself to license and operate the Project with no reasonable expectation that it would sell anything more than 300 Mw of power. If the Applicant believed that the Project would not be viable at 300 Mw alone, then it would not go to all the trouble of licensing the Project when it only has a Power Purchase Agreement ("PPA") for 300 Mw. Therefore, the Applicant has demonstrated that this Project is warranted even if only 300 Mw is developed.

It is commonplace for Applicants to argue that mitigation and alternatives are infeasible and that the approval of scaled-down alternatives would result in the Project not being economically or logistically viable. However, the Applicant's commitment to develop the Project even if it only has a guarantee of 300 Mw is clear evidence that a 300 Mw Project is capable of being accomplished even if cost, existing technology and logistics are taken into account.

A recent solar power plant licensing case, the Beacon Solar Energy Project ("Beacon"), sheds light on one methodology that the USACE could employ in evaluating the feasibility of different Project alternatives. In Beacon, the Energy Commission established a framework for analyzing the O9-55

feasibility of a Project alternative to use a different cooling technology. The Applicant claimed that the cooling technology was not financially viable.

Energy Commission staff approached the feasibility analysis by establishing reasonable benchmarks for the expected rate of return on investment, or "internal rate of return (IRR)." Staff determined that for solar plants around 250 Mw the "upper end of profitability" is 14% and that "a fair representative of the marketplace" is an 8% IRR. Staff concluded that "economic feasibility for solar energy power plants appears to be achieving an internal rate of return (annualized net profit margin) of 11% or more."

Because the Energy Commission is the entity that most often is called upon to conduct feasibility assessments for power plant permitting in California, the BLM should carefully evaluate the Commission's methodology and 11% rule of thumb and require the Applicant to provide the expected IRR for both the project as proposed, for a 300 Mw project (using the SDG&E power purchase agreement price), or a 706 Mw project (the maximum size described by the Applicant as the LEDPA).

A 300 Mw alternative that blends the benefits of reducing impacts to the washes (Drainage Avoidance Alternative #1) with the benefits of reducing impacts to cultural and biological resources (Drainage Avoidance Alternative #2) should be developed because it would be practicable for the Applicant and would be least environmentally damaging to the environment compared to the Proposed action.

Response: These comments raised concerns about the lack of avoidance of jurisdictional waters of the United States (waters of the U.S.) as well as lack of compliance with the Federal Clean Water Act (CWA) Section 404(b)(1) Guidelines. Subsequent to the completion of the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS), the applicant conducted an alternatives analysis pursuant to the CWA Section 404(b)(1) Guidelines. Those Guidelines state that "...no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." (40 Code of Federal Regulations (CFR) Section 230.10, Subdivision (a))

The United States Army Corps of Engineers (Corps) has prepared a 404(b)(1) Alternatives Analysis for the proposed IVS project. The preliminary Least Environmentally Damaging Practicable Alternative (LEDPA) has been identified by the Corps. It identifies a modification of the IVS project (the 750 MW Alternative) with reduced impacts to aquatic resources compared to the proposed action. That alternative is identified in the Final Environmental Impact

09-55

Statement (FEIS) as the 709 MW Alternative (Agency Preferred Alternative). The applicant has reduced the number of SunCatchers to be placed in Waters of the U.S. with emphasis on avoiding those Waters of the U.S. on the site which are considered to have the highest functions and values. The draft LEDPA differs from the proposed action (the 750 MW Alternative) with incorporation of the following modified project features and avoidance and minimization measures:

- Reduction in the number of SunCatchers placed in waters of the U.S. to completely
  avoid the primary washes identified as drainages I, K, and C, and avoidance of the
  northern reaches of drainages D, E, and G. This project design feature eliminates
  1,163 SunCatchers that would otherwise be placed in waters of the U.S., reducing
  permanent impacts to waters of the U.S. from 177.4 acres (ac) under the proposed
  action to 39.1 ac under the Agency Preferred Alternative.
- Reduction in the number of east-west roads to minimize the area of roads in drainages and the number of drainage crossings.
- Minor realignments of the water line from the project site to the Seeley Wastewater Treatment Plant (SWWTP) to eliminate temporary impacts during construction to waters of the U.S.
- Reduction in the width of maintenance roads from 15 to 10 feet (ft) wide.
- · Removal of spur roads to individual SunCatchers.
- · Removal of sediment entrapment basins.
- · Relocation of the Main Services Complex out of waters of the U.S.
- Replacement of culverts with precast concrete arches to reduce fill of waters of the U.S.
- Removal of SunCatchers from the northern reaches of Drainages E and G to reduce impacts to waters of the U.S. as well as to provide additional wildlife corridors within the project site.

The Agency Preferred Alternative/draft LEDPA is a reduced impact version of the proposed action. The impacts of the Agency Preferred Alternative have been analyzed pursuant to NEPA in the DEIS and this FEIS. Refer also to Appendix B, Determination of NEPA Adequacy (DNA), for a summary of that analysis.

## D.4.7.3 Effects of Climate Change on the Flat-Tailed Horned Lizard

Comments: 02-22 and 03-11.

#### I Flat-tailed Horned Lizard

Declines in populations of and habitat for the flat-tailed horned lizard were noted for decades resulting in a proposed listing of the species in 1993. Several legal challenges have resulted in the U.S. Fish and Wildlife Service currently reviewing data to determine if the species needs federal Endangered Species Act protection. Threats to the flat-tailed horned lizard are abundant from its small geographic range, it specialized and highly fragmented habitat, its sensitivity to anthropogenic effects, its narrow breadth of diet (almost exclusively harvester ants), and the lowest rates of reproduction of all known horned lizards. All of these factors highlight the potential risk of local and regional extinctions for this species.

02-22

In the more than 15 years since this listing was first proposed in 1993, the threats to the flat-tailed horned lizard have only increased. Clearly the lizard is still in decline, and the Flat-tailed Horned Lizard Management Areas, the voluntary conservation agreement that has been in place since 1997 and the Rangewide Management Strategy (2003) are not sufficient to protect the survival of the species or contribute to its recovery. Moreover, threats to the species are increasing.

considered here.

Damage to habitat from off-road vehicles has continued in all flat-tailed horned lizard areas, including the Yuha Desert, Coachella Valley, West and East Mesas, near the Algodones Dunes, and near Yuma as well as in other flat-tailed horned lizard habitat. There is increasing ORV use of designated routes as well as increased route proliferation in many areas both within the FTHL Management areas and in lizard habitat outside of these areas. These ongoing and increased impacts remain one of the greatest threats to species survival. Off-road vehicle use and route proliferation both causes direct loss of habitats and increasingly fragments remaining habitats. Habitat fragmentation is a significant factor in decreasing flat-tailed horned lizard survival and may preclude recovery in many areas. A study of flat-tailed horned lizards and other species within a conservation areas found that edge effects from roads had a significant impact on flat-tailed horned lizard populations up to 150 m from roads (as well as impacts from increased predation). Barrows et al. (2006), see also Barrows and Allen (2009) (discussion of habitat loss and high degree of fragmentation in remaining habitats).

Several renewable energy projects are proposed within flat-tailed horned lizard habitat including the proposed project here which includes thousands of acres of flat-tailed horned lizard habitat and the Ocoillo Express wind project proposal which would cover over 6,000 acres, including many acres of flat-tailed horned lizard habitat. This project could also further fragment the remaining habitat for the species and could block gene flow between the West Mesa and Yuha Desert area populations. In addition, there are at least another five pending right of way applications for both solar and wind projects covering more than 20,000 acres in areas that may include significant lizard habitat some of them adjacent to the management areas. Each of the proposed energy projects will require a new gen-tie power lines that will likely impact lizard habitat and many may also require new substations and other infrastructure that may directly affect lizard habitat. Moreover, these large-scale, single-use projects will displace other multiple uses on public lands and increase the pressure on the FTHL Management areas and other lizard habitat from QRV use.

Loss of habitat due to urban sprawl development and farming was the largest historic threat to the flat-tailed homed lizard. One new sprawl development proposal that may impact flat-tailed horned lizards and their habitat in Imperial County is the Travertine Point which proposes 12,000 housing units on nearly 5,000 acres adjacent to the Salton Sea <sup>10</sup> In addition, the renewable energy projects, as discussed above, represent another kind of sprawl development that threatens the survival of the species through direct loss of habitat as well as increasing fragmentation of habitat. For this reason, the Center and other conservation groups have advocated for sitting the new renewable energy projects on previously degraded sites in the desert habitats (including fallowed farmlands) and alternative siting should have been more fully

The flat-tailed horned lizard has largely been extirpated from the Coachella Valley outside of existing conservation areas and the little remaining habitat in Coachella Valley continues to be lost to sprawl development. Problems with small reserve size, invasive weeds, loss of sand sources, and boundary effects suggest the current Coachella Valley reserve will not

ensure the survival of the flat-tailed horned lizard in the Coachella Valley. Barrows et al. (2006) noted the significant "sink" effect along the boundary areas and cautioned "Without immigration from the preserve core, flat-tailed horned lizards may not be able to sustain populations in the boundary region." This same concern regarding boundary effects arises for the management areas where routes already fragment the management areas and where additional development is proposed on the borders. This project could similarly limit the effectiveness of the FTHL Management areas by fragmenting the habitat and cutting off connectivity between areas.

The Sunrise Powerlink powerline project would also directly impact lizard habitat. This project, if built, will also increase the likelihood that other proposed energy projects will be built in areas that will directly affect the lizard including the proposed project and other such as the Ocotillo wind project and the associated gen-tie lines and substations. Powerlines also provide perches for raptors which then prey on the flat-tailed homed lizards, putting further unnatural predation pressures on this declining species (Barrows, pers. communication).

On-going and increasing impacts to flat-tailed homed lizard habitat near the US-Mexican border in CA and AZ are also of concern particularly off-road vehicle use by border patrol agents (and others). Border Patrol 'time drags' of dirt roads in lizard habitat are also a problem and continue to kill or injure lizards. The spread of non-native mustards and other invasive plants may also threaten flat-tailed homed lizard habitat viability. Even if exotic plant species do not directly change the habitat character or decrease food sources, many of these invasive weed plants can support and spread fire that could kill or injure lizards in an area where fire would naturally be an extremely rare occurrence (Brooks et al. 2004). The proposed project with its large hydrogen reserves and piping system would also greatly increase the likelihood of fire and the impacts to the lizard and other wildland resources should have been considered in the DEIS but were not.

Many of the existing and proposed development projects including the proposed project as well as ORV use will increase the likelihood of predation of flat-tailed horned lizards further diminishing their numbers and ability to survive. Barrows et al. (2006) found a significant increase predation in their study of boundary effects. Increased development provides new roosting and nesting sites for predators including for example shrikes and kestrels which are known predators of the flat-tailed horned lizard. It is well established that increases in subsidies from human activities which provide additional water sources and food/trash also increase other potential predators such as ravens.

The flat-tailed horned lizard as all other species, will be affected by climate change. The Service is well aware of the threats to species due to climate change and in turn the threats to biodiversity across in many diverse ecosystems. In its most recent 2007 report, the Intergovernmental Panel on Climate Change (IPCC) expressed in the strongest language possible its finding that global warming is occurring: "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level" (IPCC 2007: 30). The international scientific consensus of the IPCC is that most of the recent warming observed has been caused by human activities (IPCC 2007). The U.S. Global Change Research Program also stated that "global warming is unequivocal and primarily human-induced" (UCGCRP: 12). One

of the most troubling recent findings is that the concentration of atmospheric carbon dioxide, the biggest contributor to global warming, has been rapidly increasing throughout the 2000s and is generating stronger-than-expected and sooner-than-predicted climate forcing (Raupach et al. 2007)

The global average temperature has risen by approximately  $0.74^{\circ}$  C  $\pm$   $0.18^{\circ}$  C  $(1.33^{\circ}$  F  $\pm$ 0.32° F) during the past 100 years (1906-2005) (Trenberth et al. 2007) in response to rapidly increasing greenhouse gas concentrations. Atmospheric concentration of carbon dioxide has increased by 36% since 1750 to a level that has not been exceeded during the past 650,000 years and likely not during the past 20 million years (Denman et al. 2007). The rate of increase in the atmospheric carbon dioxide concentration is accelerating, with especially rapid increases observed in the 2000s. The emissions growth rate rose from 1.1% per year from 1990-1999 to 3.5 % per year from 2000-2007 (McMullen and Jabbour 2009). The emissions growth rate since 2000 has even exceeded that of the most fossil-fuel intensive IPCC SRES emissions scenario, A1FI (McMullen and Jabbour 2009, Richardson et al. 2009). During the past 50 years, carbon dioxide sinks on land and in the oceans have become less efficient in absorbing atmospheric carbon dioxide, which is contributing to the observed rapid rise (Canadell et al. 2007). The atmospheric concentration of methane, another important greenhouse gas, has increased by about 150% since 1750, continues to increase, and has not been exceeded during the past 650,000 years (Forster et al. 2007). Similarly, the atmospheric concentration of nitrous oxide has increased by about 18% since 1750, continues to increase, and has not been exceeded during at least the last 2000 years (Forster et al. 2007). With atmospheric carbon dioxide at ~390 ppm and worldwide emissions continuing to increase, rapid and substantial reductions are clearly needed immediately.

02-22

As scientific understanding of global warming has advanced, so too has the urgency of the warnings from scientists about the consequences of our greenhouse gas emissions for biodiversity loss. Significant and wide-ranging ecological impacts of climate change have been well-documented by thousands of peer-reviewed papers. These impacts include changes in distribution, phenology, physiology, demographic rates, abundance, and genetics (see Lovejoy and Hannah (2005), Parmesan (2006), Hartley et al. (2006) for a small sampling of comprehensive reviews). Studies that have forecast species extinction risk under projected climate conditions have predicted catastrophic species losses during this century. Under a midlevel emissions scenario, Thomas et al. (2004) predicted that climate change will commit 15-37% of species to extinction by 2050. The IPCC found that 20 to 30% of plant and animal species will face an increasingly high risk of extinction as global mean temperatures exceed 2 to 3°C above pre-industrial temperatures (Parry et al. 2007). If current carbon pollution trends continue, the IPCC estimated that climate change will threaten up to 70% of plant and animals with extinction by 2100 (Parry et al. 2007). Therefore, immediate reduction of greenhouse gas pollution is critical to slow global warming and ultimately stabilize the climate system before we commit a significant portion of the world's species to extinction.

Threats to the flat-tailed horned lizard from climate change are significant for several reasons. First, a recent study shows that desert areas may be some of the first affected by increasing temperature and that the changes may be more rapid in these ecosystems making adaptation more difficult. Second, the existing and likely increasing fragmentation of the lizard's habitat by the proposed project and others will make any adaptation through movement across the landscape far more difficult. Thus, the flat-tailed horned lizard although adapted to hot desent environments may nonetheless be significantly impacted by climate change due to its loss of habitat and the constraints on adaptation.

While the FTHL Rangewide Management Strategy (2003) established Management Areas for the conservation and recovery of the flat-tailed homed lizard, it fails to include connectivity corridors that will help to ensure genetic viability of the core Management Areas. The proposed project site clearly supports significant populations of flat-tailed homed lizard – an estimated 2000 – 5000 animals or 0.32-0.81 lizards/acre which provides an important linkage between the adjacent management areas (Yuha and West Mesa). When last surveyed these two "conserved" areas provided only somewhat higher densities than those estimated at the proposed project site. "I which also shows the importance of preserving the habitath here.

Impacts to the flat-tailed horned lizards and other affected species must be avoided where possible through a robust alternatives analysis and any remaining impacts should be minimized and mitigated. Unfortunately, the proposal to relocate flat-tailed horned lizards is not part of a comprehensive proposal but appears to be largely an experiment absent any scientific "controls" that may itself have significant impacts to this imperiled species. The DEIS fails to provide a draft of the relocation plan for public review thus undermining NEPA review. Relocation sites are not identified, nor is the impact to resident flat-tailed horned lizards at the relocation sizes analyzed. An analysis of likely impacts from the relocation is particularly important based on data that indicates that food resources are a limiting factor in population numbers<sup>12</sup>. Relocating additional flat-tailed horned lizards into a habitat that is already sustaining its carrying capacity will be detrimental to the species.

Furthermore, mechanisms need to be included to assure that any and all mitigation acquisitions will be conserved in perpetuity for the conservation of the flat-tailed horned lizard. If those acquisitions are within existing Management Areas, higher levels of protection than are currently in place for Management Areas need to be put in place. NEPA mandates consideration of the relevant environmental factors and environmental review of "[b]oth short-and long-term effects" in order to determine the significance of the project's impacts. 40 C.F.R. § 1508.27(a) (emphasis added). BLM has clearly failed to do so in this instance with respect to the impact to the flat-tailed horned lizard.

The SA/DEIS addresses the need to address the effects of climate change largely through reduction of greenhouse gases and development use of renewable energy sources. The BLM has failed to analyze the impacts climate change will have on species, and the resources required ensure sufficient habitat as the species adapt.

Recommendation: BLM should expand the analysis of the effects of the proposed project and each alternative on biological resources and their ability to adapt to climate change, such as occupation and use of habitat on a regional scale that may be essential in sustaining at-tisk species. Such an expanded analysis should include cumulative effects and mitigation measures, including those associated with climate change.<sup>2</sup>

O3-11

02-22

O3-11

Response: These comments raised concerns about the lack of analysis about potential effects of global climate change on the flat-tailed horned lizard (FTHL) specifically and special-status species in general. Because the long term effects of climate change cannot be quantified, it is impossible to provide a quantifiable analysis of the potential effects that climate change could have on FTHL and other special-status species.

Refer also to Sections 3.3 and 4.3, Climate Change, in the FEIS, and Section D.4.8, Climate Change, below for additional discussion regarding climate change.

## D.4.7.4 Flat-Tailed Horned Lizard Connectivity

Comments: F2-28, NA1-11, O2-3, O2-22, O6-8, O7-7, O9-20, and O9-30.

Additionally, over 6,000 acres of Flat-Tailed Horned Lizard (FTHL) habitat would be permanently impacted by the proposed Project (at pg. C.2-60). Long-term impacts may occur as a result of permanent loss of habitat, increased predation, and habitat fragmentation. Approximately 50% of the historical range of FTHL in California has been destroyed mainly by agricultural and urban development (at pg. C.2-71). Although FTHL is not currently listed, UFWS was recently instructed by federal district court to reinstate the proposal to list FTHL under the Endangered Species Act (ESA). EPA appreciates the extensive discussion on the impacts to FTHL as well the proposed mitigation measures and compensatory mitigation for approximately 6,600 acres of habitat, as directed by the FTHL Rangewide Management Strategy. The DEIS indicates that if listing of FTHL species should take place during the construction or

operation of the Project, the potential take and loss of habitat for the FTHL would need to be addressed by the BLM, in conferencing with the USFWS (at pg. C.2-1).

F2-28

F2-28

Cumulative impacts on flat-tailed horned lizard habitat also deserve additional attention. DEIS, Biological Resources, page C.2-21 acknowledges that "the FTHL populations have declined throughout their range because of loss and degradation of habitat caused by urbanization, agricultural development, military activities, recreational OHV use, and Border Patrol and illegal drive-through traffic." The Flat-tailed Horned Lizard Rangewide Management Strategy, page 45, confirms that it is necessary to "maintain or establish effective habitat corridors between naturally adjacent populations." The DEIS fails to adequately address how the

development of approximately one million acres of renewable energy projects in this area will impact the FTHL and its habitat.

NA1-11

Nonetheless, even the inadequate information provided in the DEIS shows that the proposed plan amendment and right-of-way application should be denied because the proposed project will result in significant impacts to a breeding population of flat-tailed homed lizards, which are proposed to be listed under the Endangered Species Act ("ESA"). In addition to direct impacts to the flat-tailed horned lizard, the proposed project is in an area that links the northern and southern populations and management areas for this imperiled species – areas which were set aside for the conservation and recovery of the species. Although the DEIS acknowledges that this site includes documented foraging area for the federally and state endangered Peninsular bighorn sheep (DEIS at C.2-39), the DEIS improperly ignored potential impacts to the bighorn from the loss of this foraging area. Alternative siting, which the BLM failed to adequately address in the DEIS, could significantly reduce the impacts to both of these species, their occupied habitat, and other special status species including potentially rare plants. The Center urges the BLM to revise the DEIS to adequately address these and other issues detailed below and re-circulate the DEIS or a supplemental DEIS for public comment.

02-3

In the sections that follow, the Center provides detailed comments on the ways in which the DEIS fails to adequately identify and analyze many of the impacts that could result from the proposed project, including but not limited to: impacts to biological resources, growth inducing impacts alternatives and cumulative impacts. In addition, if undertaken as proposed, this industrial project is inconsistent with local planning and zoning laws, the Endangered Species Act ("ESA"), the Federal Land Policy Management Act ("FLPMA"), the California Desert Conservation Act ("CDCA"), and other laws, ordinances, regulations and standards.

### 1. Flat-tailed Horned Lizard

Declines in populations of and habitat for the flat-tailed horned lizard were noted for decades resulting in a proposed listing of the species in 1993. Several legal challenges have resulted in the U.S. Fish and Wildlife Service currently reviewing data to determine if the species needs federal Endangered Species Act protection. Threats to the flat-tailed horned lizard are abundant from its small geographic range, it specialized and highly fragmented habitat, its sensitivity to anthropogenic effects, its narrow breadth of diet (almost exclusively harvester ants), and the lowest rates of reproduction of all known horned lizards. All of these factors highlight the potential risk of local and regional extinctions for this species.

02-22

In the more than 15 years since this listing was first proposed in 1993, the threats to the flat-tailed horned lizard have only increased. Clearly the lizard is still in decline, and the Flat-tailed Horned Lizard Management Areas, the voluntary conservation agreement that has been in place since 1997 and the Rangewide Management Strategy (2003) are not sufficient to protect the survival of the species or contribute to its recovery. Moreover, threats to the species are increasing.

Damage to habitat from off-road vehicles has continued in all flat-tailed homed lizard areas, including the Yuha Desert, Coachella Valley, West and East Mesas, near the Algodones Dunes, and near Yuma as well as in other flat-tailed homed lizard habitat. There is increasing ORV use of designated routes as well as increased route proliferation in many areas both within the FTHL. Management areas and in lizard habitat outside of these areas. These ongoing and increased impacts remain one of the greatest threats to species survival. Off-road vehicle use and route proliferation both causes direct loss of habitat and increasingly fragments remaining habitats. Habitat fragmentation is a significant factor in decreasing flat-tailed homed lizard survival and may preclude recovery in many areas. A study of flat-tailed homed lizards and other species within a conservation areas found that edge effects from roads had a significant impact on flat-tailed homed lizard populations up to 150 m from roads (as well as impacts from increased predation). Barrows et al. (2006); see also Barrows and Allen (2009) (discussion of habitat loss and high degree of fragmentation in remaining habitats).

Several renewable energy projects are proposed within flat-tailed horned lizard habitat including the proposed project here which includes thousands of acres of flat-tailed horned lizard habitat and the Ocoillo Express wind project proposal which would cover over 6,000 acres, including many acres of flat-tailed horned lizard habitat. This project could also further fragment the remaining habitat for the species and could block gene flow between the West Mesa and Yuha Desert area populations. In addition, there are at least another five pending right of way applications for both solar and wind projects covering more than 20,000 acres in areas that may include significant lizard habitat some of them adjacent to the management areas. Seach of the proposed energy projects will require a new gen-tie power lines that will likely impact lizard habitat and many may also require new substations and other infrastructure that may directly affect lizard habitat. Moreover, these large-scale, single-use projects will displace other multiple uses on public lands and increase the pressure on the FTHL Management areas and other lizard habitat from ORV use.

Loss of habitat due to urban sprawl development and farming was the largest historic threat to the flat-tailed horned lizard. One new sprawl development proposal that may impact flat-tailed horned lizards and their habitat in Imperial County is the Travertine Point which proposes 12,000 housing units on nearly 5,000 acres adjacent to the Salton Sea. \*\* In addition, the renewable energy projects, as discussed above, represent another kind of sprawl development that threatens the survival of the species through direct loss of habitat as well as increasing fragmentation of habitat. For this reason, the Center and other conservation groups have advocated for sting the new renewable energy projects on previously degraded sites in the desert habitats (including fallowed farmlands) and alternative siting should have been more fully considered here

The flat-tailed horned lizard has largely been extirpated from the Coachella Valley outside of existing conservation areas and the little remaining habitat in Coachella Valley continues to be lost to sprawl development. Problems with small reserve size, invasive weeds, loss of sand sources, and boundary effects suggest the current Coachella Valley reserve will not

ensure the survival of the flat-tailed horned lizard in the Coachella Valley. Barrows et al. (2006) noted the significant "sink" effect along the boundary areas and cautioned "Without immigration from the preserve core, flat-tailed horned lizards may not be able to sustain populations in the boundary region." This same concern regarding boundary effects arises for the management areas where routes already fragment the management areas and where additional development is proposed on the borders. This project could similarly limit the effectiveness of the FTHL Management areas by fragmenting the habitat and cutting off connectivity between areas.

The Sunrise Powerlink powerline project would also directly impact lizard habitat. This project, if built, will also increase the likelihood that other proposed energy projects will be built in areas that will directly affect the lizard including the proposed project and other such as the Ocotillo wind project and the associated gen-tie lines and substations. Powerlines also provide perches for raptors which then prey on the flat-tailed homed lizards, putting further unnatural predation pressures on this declining species (Barrows, pers. communication).

On-going and increasing impacts to flat-tailed horned lizard habitat near the US-Mexican border in CA and AZ are also of concern particularly off-road whiche use by border patrol agents (and others). Border Patrol 'tire drage' of dir roads in lizard habitat are also a problem and continue to kill or injure lizards. The spread of non-native mustards and other invasive plants may also threaten flat-tailed horned lizard habitat viability. Even if exotic plant species do not directly change the habitat character or decrease food sources, many of these invasive weed plants can support and spread fire that could kill or injure lizards in an area where fire would naturally be an extremely rare occurrence (Brooks et al. 2004). The proposed project with its large hydrogen reserves and piping system would also greatly increase the likelihood of fire and the impacts to the lizard and other wildland resources should have been considered in the DEIS but were not

Many of the existing and proposed development projects including the proposed project as well as ORV use will increase the likelihood of predation of flat-tailed horned lizards further diminishing their numbers and ability to survive. Barrows et al. (2006) found a significant increase predation in their study of boundary effects. Increased development provides new roosting and nesting sites for predators including for example shrikes and kestrels which are known predators of the flat-tailed horned lizard. It is well established that increases in subsidies from human activities which provide additional water sources and food/trash also increase other potential predators such as ravens.

The flat-tailed horned lizard as all other species, will be affected by climate change. The Service is well aware of the threats to species due to climate change and in turn the threats to biodiversity across in many diverse ecosystems. In its most recent 2007 report, the Intergovernmental Panel on Climate Change (IPCC) expressed in the strongest language possible its finding that global warming is occurring: "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level" (IPCC 2007 30). The international scientific consensus of the IPCC is that most of the recent warming observed has been caused by human activities (IPCC 2007). The U.S. Global Change Research Program also stated that "global warming is unequivocal and primarily human-induced" (UCGCRP: 12). One

of the most troubling recent findings is that the concentration of atmospheric carbon dioxide, the biggest contributor to global warming, has been rapidly increasing throughout the 2000s and is generating stronger-than-expected and sooner-than-predicted climate forcing (Raupach et al. 2007).

The global average temperature has risen by approximately 0.74° C ± 0.18° C (1.33° F ± 0.32° F) during the past 100 years (1906-2005) (Trenberth et al. 2007) in response to rapidly increasing greenhouse gas concentrations. Atmospheric concentration of carbon dioxide has increased by 36% since 1750 to a level that has not been exceeded during the past 650,000 years and likely not during the past 20 million years (Denman et al. 2007). The rate of increase in the atmospheric carbon dioxide concentration is accelerating, with especially rapid increases observed in the 2000s. The emissions growth rate rose from 1.1% per year from 1990-1999 to 3.5 % per year from 2000-2007 (McMullen and Jabbour 2009). The emissions growth rate since 2000 has even exceeded that of the most fossil-fuel intensive IPCC SRES emissions scenario. A1FI (McMullen and Jabbour 2009, Richardson et al. 2009). During the past 50 years, carbon dioxide sinks on land and in the oceans have become less efficient in absorbing atmospheric carbon dioxide, which is contributing to the observed rapid rise (Canadell et al. 2007). The atmospheric concentration of methane, another important greenhouse gas, has increased by about 150% since 1750, continues to increase, and has not been exceeded during the past 650,000 years (Forster et al. 2007). Similarly, the atmospheric concentration of nitrous oxide has increased by about 18% since 1750, continues to increase, and has not been exceeded during at least the last 2000 years (Forster et al. 2007). With atmospheric carbon dioxide at ~390 ppm and worldwide emissions continuing to increase, rapid and substantial reductions are clearly needed immediately.

As scientific understanding of global warming has advanced, so too has the urgency of the warnings from scientists about the consequences of our greenhouse gas emissions for biodiversity loss, Significant and wide-ranging ecological impacts of climate change have been well-documented by thousands of peer-reviewed papers. These impacts include changes in distribution, phenology, physiology, demographic rates, abundance, and genetics (see Lovejoy and Hannah (2005), Parmesan (2006), Hartley et al. (2006) for a small sampling of comprehensive reviews). Studies that have forecast species extinction risk under projected climate conditions have predicted catastrophic species losses during this century. Under a midlevel emissions scenario. Thomas et al. (2004) predicted that climate change will commit 15-37% of species to extinction by 2050. The IPCC found that 20 to 30% of plant and animal species will face an increasingly high risk of extinction as global mean temperatures exceed 2 to 3°C above pre-industrial temperatures (Parry et al. 2007). If current carbon pollution trends continue, the IPCC estimated that climate change will threaten up to 70% of plant and animals with extinction by 2100 (Parry et al. 2007). Therefore, immediate reduction of greenhouse gas pollution is critical to slow global warming and ultimately stabilize the climate system before we commit a significant portion of the world's species to extinction.

Threats to the flat-tailed horned lizard from climate change are significant for several reasons. First, a recent study shows that desert areas may be some of the first affected by increasing temperature and that the changes may be more rapid in these ecosystems making adaptation more difficult. Second, the existing and likely increasing fragmentation of the

lizard's habitat by the proposed project and others will make any adaptation through movement across the landscape far more difficult. Thus, the flat-tailed homed lizard although adapted to hot desert environments may nonetheless be significantly impacted by climate change due to its loss of habitat and the constraints on adaptation.

While the FTHL Rangewide Management Strategy (2003) established Management Areas for the conservation and recovery of the flat-taited horned lizard, it fails to include connectivity corridors that will help to ensure genetic viability of the core Management Areas. The proposed project site clearly supports significant populations of flat-taited horned lizard – an estimated 2000 – 5000 animals or 0.32-0.81 lizards/acre which provides an important linkage between the adjacent management areas (Yuha and West Mesa). When last surveyed these two "conserved" areas provided only somewhat higher densities than those estimated at the proposed project site. "Which also shows the importance of preserving the habitat here.

Impacts to the flat-tailed horned lizards and other affected species must be avoided where possible through a robust alternatives analysis and any remaining impacts should be minimized and mitigated. Unfortunately, the proposal to relocate flat-tailed horned lizards is not part of a comprehensive proposal but appears to be largely an experiment absent any scientific "controls" that may itself have significant impacts to this imperiled species. The DEIS fails to provide a draft of the relocation plan for public review thus undermining NEPA review. Relocation sites are not identified, nor is the impact to resident flat-tailed horned lizards at the relocation sites are not identified, nor analysis of likely impacts from the relocation is particularly important based on data that indicates that food resources are a limiting factor in population numbers<sup>12</sup>. Relocating additional flat-tailed horned lizards into a habitat that is already sustaining its carrying capacity will be detrimental to the species.

Furthermore, mechanisms need to be included to assure that any and all mitigation acquisitions will be conserved in perpetuity for the conservation of the flat-tailed horned lizard. If those acquisitions are within existing Management Areas, higher levels of protection than are currently in place for Management Areas need to be put in place. NEPA mandates consideration of the relevant environmental factors and environmental review of "Eploth short- and long-term effects" in order to determine the significance of the project's impacts. 40 C.F.R. § 1508.27(a) (emphasis added). BLM has clearly failed to do so in this instance with respect to the impact to the flat-tailed horned lizard.

The SA/DEIS fails to disclose potentially significant impacts to the Peninsular bighorn sheep ("PBHS") and the FTHL. Both PBHS and FTHL wave been "observed on [the] project site" SA/DEIS, pp. C.2-16, C-218. PBHS is listed under the federal Endangered Species Act [61 FR 13134, 13136) and a proposed listing of FTHL is currently under review. SA/DEIS, p. C.2-40 (detailing process that led to a federal court order requiring USFWS to consider listing FTHL). The SA/DEIS also fails to disclose significant impacts to special-status plant species. The deficiencies are exemplified by the SA/DEIS' statement that the significance of biological impacts is "to be provided," in violation of both CEQA and NEPA. ES-15.

Although PBHS was observed on the Project site, the SA/DEIS claims that PBHS' use of the project site "is transitory at best" and that therefore impacts to PBHS would be less than significant. SA/DEIS, p. C2-40. This conclusion is based solely upon BLM's and the applicant's "speculat[ion] that the [PBHS] sited [sic] at the Project location could have been flushed by OHV activity and possibly became disoriented and wandered not the project site." SA/DEIS, p. C2-24. This is "pure speculation" that "is contradicted by the evidence regarding known [PBHS] behavior." Testimony of Dr. Vernon Bleich on behalf of California Unions for Reliable Energy ("CURE"), Exhibit 400 to opening testimony for CURE, p. 4. It is quite likely that PBHS appear in the Project vicinity on a regular basis. In fact, just three days ago (May 24, 2010), a group of five adult PBHS ewes were seen about 4-5 miles west of the Project site. Comment letter by Denis Trafecanty, sent May 27, 2010, p. 1.

As Dr. Bleich testified, on behalf of California Unions for Reliable Energy ("CURE"), "the SA fails to adequately analyze the potential reason(s) that PBHS were using [the Project site] and, as result," its conclusions that PBHS appearance was a mere coincidence are "indefensible." Id. at 1, 5. The SA/DEIS also fails to identify or mitigate impacts to forage habitat, and fails to identify and mitigate the loss of 6,063 acres of bighorn sheep habitat within the CTCRA. See generally id. 5-9. The SA/DEIS' "failfurer to adecuately identify the feel slignificant impacts" is unlawful. Id. at 1.

Furthermore, consultation with the Fish and Wildlife Service regarding the Project's impacts on BBHS is required. The Endangered Species Act specifies that "[t]he agency taking the action must assess the project's effects on endangered or threatened species and consult with the FWS to assure the project's compliance with the ESA." Sterra Club v. Marsh, 816 F.2d 1376 (9th Cir. 1987). "The consultation process is triggered when a federal agency... undertakes any activity which could impact an endangered species or threaten its critical habitat." Florida Key Deer v. Stickney, 864 F.Supp. 1222, 1228 (S.D. Fla. 1994) (cting 16 U.S.C. § 1536(a)(2)) (emphasis in original). Here, as discussed above, the Project "could" affect the PBHS. Thus, consultation with FWS is mandath FWS is the project "could" affect the PBHS. Thus, consultation with FWS is mandated.

Scott Cashen, an expert biologist, testified as to the Project's undisclosed impacts on special status plant species and the FTHL. Exhibit 429 to opening testimony for CURE. In his professional opinion, the SA/DEIS contains "inadequate information on the presence of special-status plant species within the Project area" and "as a result ... the SA/DEIS cannot conclude (that) proposed mitigation

O6-8

would reduce Project impacts" on these species "to less than significant levels." *Id.* at 2; *see also* mitigation measure BiO-19, SA/DEIS pp. C.2-97 through 100. The size of the buffer zone for special-status plant species is unknown and likely insufficient. *Id.* at 2-3. Mr. Cashen also testified that the proposed mitigation measures to mitigate impact to *non*-listed species are unenforceable and that impacts to these species would be significant as well. *Id.* at 3-4. Unless all required plant surveys are completed *before* the mitigation measures are adopted, it is impossible to tell whether the mitigation measures will be effective. *Id.* at 5. Moreover, fall surveys for special-status plant species have not yet been prepared. *Id.* at 6. Because of these informational inadequacies, the SA/DEIS is legally deficient.

With regard to the FTHL, the SA/DEIS contains no conclusion regarding the Project's impacts. 
"(S)IaT is in the process of evaluating if the use of compensation funds is sufficient for CEQA mitigation." SA/DEIS, p. C.2-61. As discussed above, the DEIS itself is required to include this information. There is a "possibility that thousands of FTHL will die as a result of the Project"; a population of this size is "roughly half the size of the population within the entire West Mesa MA." Exhibit 429 to opening testimony for CURE, pp. 8-9. Additionally, "the loss of 6.653 acres of labitat" that would accompany the Project "represents a tremendous impact" on the FTHL, which "is proposed for listing due to habitat loss." These impacts must be mitigated before the Project is approved, not after.

The Project also "would cause considerable fragmentation to the remaining FTHL habitat." 'd. at 9. Nonetheless, "[t]he SA/DEIS proposed no mitigation is infeasible is unsupported by the record. Id. at 11. The SA/DEIS conclusion that such mitigation is infeasible is unsupported by the record. Id. There is no basis to assume that a corridor underneath 1-8 would be impractical. Id. Additionally, the SA/DEIS contemplates that the FTHL "would be moved out of harm's way." SA/DEIS at C2-55, but this strategy "only partially addresses the [FTHL's] survivorship" and, accordingly, only partially mitigates this impact. Exhibit 429 to opening testimony for CURE, p. 12. CEQA requires these potentially significant impacts to be mitigated and the SA/DEIS' failure to do so is unlawful.

Finally, the compensatory mitigation measure, BIO-10, also fails to fully mitigate habitat loss. This measure would allow current habitat to be replaced by "poor quality habitat." SA/DEIS, p. C.2-85. As such, the SA/DEIS fails to "prevent[] a net loss of FTHL habitat," as claimed. Exhibit 429 to opening testimony for CURE, p. 14.

The Flat-tailed horned lizard (FTHL) is proposed for Federal listing, and adding fragmentation of its habitat to the list of threats would not be wise. This project lies in a poor location, a connectivity corridor between the Yuha Basin management area and West Mesa management area to the north. Currently, there are highways, roads, and rail tracks that act as filters, but not barriers, to lizard movement and population connection. On May 24 and 24, 2010, Cunningham visited the project site and determined that Highway 8 was not a barrier to FTHL crossing. The roadway is low, often a few feet above desert ground level, and has no barrier fencing to prevent lizard access. The entire road adjacent to the project has habitat on both sides. Mortality would occur on the road, but not prevention of crossing. Thus it is not a barrier.

Adding a much wider industrial project into the broad corridor area of the flat desert between management areas would add a greater hindrance of chainlink fencing that would collect debris, increase disturbance, roads and driving during construction, operation, and maintenance. Mortality would increase greatly because of the size of the project.

The applicant indicates that the Coyote Wash underpassing on Highway 8 would be adequate to maintain connectivity after the project is built. But on a site visit, we determined that this is much too small to guarantee movement and genetic connectivity north and south of the project site.

This case is similar to the Ridgecrest Solar Power Project (RSPP) in Kern County, California, where the project would block a 13-mile wide flat gap between mountain ranges, thus cutting off connectivity for Mojave ground squirrels. Staff has recommended against the project because this connectivity cannot be mitigated under NEPA and CEOA.

# D. MOVEMENT CORRIDOR FOR FLAT TAILED HORNED LIZARD

The Project's biological impacts were identified and analyzed by independent biologist Scott Cashen. His testimony is attached to this comment and his opinions herein. According to biologist Scott Cashen, see maintenance of corridors is essential to the long-term conservation of the FTHL. The DEIS fails to adequately describe the FTHL movement corridor that is part of the affected environment.

The flat-tailed horned lizard ("FTHL") is proposed for listing under the Endangered Species Act because of population declines associated with widespread habitat loss, fragmentation, and degradation. The Project will be a significant contributor to the continued decline of the species. Mitigation for impacts to the FTHL is governed by the FTHL Rangewide Management Strategy ("RMS"). 33 According to the RMS. "Islignatory agencies incorporate RMS measures into their land management plans." 54

The RMS implements a conservation strategy based on establishment of five, relatively large, reserves (i.e., Management Areas ("MA")). The RMS identifies lands between the Yuha Desert and West Mesa MAs as potential habitat corridors that should be maintained. This is the area proposed for the Project site.

According to the RMS:

- Planned actions provide guidance for managers to maintain sufficient habitat to provide for interchange of FTHLs between MAs, where habitat corridors persist. In this way, those naturally
  - adjoining populations of FTHLs will be able to interbreed, helping to maintain genetic vigor, and natural recolonization could occur in the case of extirpation from local populations.
- Activities in potential habitat corridors between MAs and the RA shall be regulated or mitigated so that at least occasional interchange of FTHLs occurs among adjacent populations. Potential habitat corridors include lands between West Mesa and Yuha Desert MAs.

Activities inherent in Project construction and operation would function as a barrier to FTHL movement that is unmitigated in the DEIS. The Project will almost completely isolate the Yuha Desert MA from the other MAs. The DEIS failed to identify this important movement corridor as a critical part of the Project's affected environment.

09-20

## b. Loss of Connectivity Between Reserves

The applicant identified interference with the movement of FTHL between the West Mesa and Yuha Desert MAs as a significant impact. However, the DEIS failed to identify this significant impact, Presently, FTHL will cross roads and culverts to get to the Project site and move between MAs. The DEIS does not propose any mitigation or avoidance to maintain connectivity through the Project site.

09-30

Response: These comments relate to project effects on the connectivity of FTHL habitat, with emphasis on ensuring connectivity between the Yuha FTHL Management Area (MA) south of the IVS project site and the West Mesa FTHL MA north of the IVS project site. Although the IVS project site is somewhat isolated by existing barriers to FTHL movement, specifically Interstate 8 (I-8) adjacent to the south boundary of the project site and Evan Hewes Highway and the railroad to the north, the IVS project site could provide some connectivity between FTHL populations and the two MAs. The applicant has proposed alternatives to eliminate SunCatcher placements in the primary washes of the site, which would generally support potential FTHL movement north or south through the IVS project site. Refer to Section D.4.7.2, Avoidance of Aquatic Resources, above, for additional discussion regarding avoidance of drainages on the IVS project site in the Agency Preferred Alternative.

## D.4.7.5 Flat-Tailed Horned Lizard Mitigation

Comments: F2-28, F2-29, NA1-11, S2-3, O2-3, O2-22, O2-31, O2-37, O3-5, O3-7, O3-10, O4-3, O6-8, O7-7, O8-19, O9-4, O9-28, O9-29, O9-43, and P7-3.

Additionally, over 6,000 acres of Flat-Tailed Horned Lizard (FTHL) habitat would be permanently impacted by the proposed Project (at pg. C.2-60). Long-term impacts may occur as a result of permanent loss of habitat, increased predation, and habitat fragmentation. Approximately 50% of the historical range of FTHL in California has been destroyed mainly by agricultural and urban development (at pg. C.2-71). Although FTHL is not currently listed, UFWS was recently instructed by federal district court to reinstate the proposal to list FTHL under the Endangered Species Act (ESA). EPA appreciates the extensive discussion on the impacts to FTHL as well the proposed mitigation measures and compensatory mitigation for approximately 6,600 acres of habitat, as directed by the FTHL Rangewide Management Strategy. The DEIS indicates that if listing of FTHL species should take place during the construction or

F2-28

operation of the Project, the potential take and loss of habitat for the FTHL would need to be addressed by the BLM, in conferencing with the USFWS (at pg. C.2-1).

F2-28

Proposed designs for the Project should avoid and minimize impacts to all federally threatened and endangered species, as well as BLM species of concern and State species of concern. In addition to bighorn sheep and FTHL, the site of the proposed Project includes sensitive species such as the American badger and the Western burrowing owl, among others. Any mitigation measures that result from consultation with the USFWS to protect sensitive biological resources should be included in the FEIS and, ultimately, the ROD. The FEIS should also clearly articulate under which alternatives sensitive biological resources, including the bighorn sheep, FTHL and American badger, would be least impacted and to what extent immacts can be mitigated.

#### Recommendations:

- EPA recommends BLM include the outcome of further discussions with, and future determinations or biological analyses by, the U.S. Fish and Wildlife Service in the FEIS pertaining to the Peninsular bighorn sheep and FTHL. Additionally, the FEIS should provide analysis of impacts on, and mitigation for, covered species, including:
  - Baseline conditions of habitats and populations of the covered species;
  - A clear description of how avoidance, mitigation, and conservation measures will protect and encourage the recovery of the covered species and their habitats in the project area;
  - Monitoring, reporting, and adaptive management efforts to ensure species and habitat conservation effectiveness.
- Incorporate complete information on the compensatory mitigation proposals (including quantification of acreages, estimates of species protected, costs to acquire compensatory lands, etc.) and analyze the environmental and economic trade-offs of acquiring the off-site lands versus reducing the size of on-site alternatives for equivalent protection.
- The FEIS should provide additional information to substantiate the finding that it is
  unlikely that FTHL would use the culverts to move between the Yuha Desert FTHL
  Management Area and the proposed Froject site due to the long distance between
  these areas and lack of light along the length (at pg. C.2-22)
- The FEIS should consider establishing a corridor on the eastern portion of the site to
  facilitate surface flows and allow FTHL movement between zones consistent with the
  FTHL Rangewide Management Plan.
- The FEIS should also clearly articulate under which alternatives sensitive biological resources, including the Peninsular bighorn sheep and FTHL, would be least impacted and to what extent impacts can be mitigated.
- A clear commitment to implement mitigation measures to avoid and minimize adverse
  effects to the habitat of the Peninsular bighorn sheep, FTHL and other sensitive species
  should be made in the FEIS and, ultimately, the ROD.

Cumulative impacts on flat-tailed horned lizard habitat also deserve additional attention. DEIS, Biological Resources, page C.2-21 acknowledges that "the FTHL populations have declined throughout their range because of loss and degradation of habitat caused by urbanization, agricultural development, military activities, recreational OHV use, and Border Patrol and illegal drive-through traffic." The Flat-tailed Horned Lizard Rangewide Management Strategy, page 45, confirms that it is necessary to "maintain or establish effective habitat corridors between naturally adjacent populations." The DEIS fails to adequately address how the

development of approximately one million acres of renewable energy projects in this area will impact the FTHL and its habitat.

NA1-11

NA1-11

F2-29

Biologically, the loss of over 6,000 acres of habitat for the proposed-endangered Flat-tailed Horned Lizard should be considered significant and will require costly mitigation according to formulas derived as part of the Flat-tailed Horned Lizard Conservation Strategy. The loss of over 6,000 acres of habitat for burrowing owls (a California Species of Special Concern), likewise will need to be mitigated. The presence of individuals of the State- and federally-listed endangered Peninsular Range population of the Desert Bighorn Sheep will also require mitigation as a result of this project. Some 312 acres of desert washes and waterways would be impacted by the proposed project and require mitigation under the U.S. Army Corps of Engineers and California Department of Fish and Game guidelines. Numerous other sensitive plant and animal species will also need to be mitigated.

S2-3

Nonetheless, even the inadequate information provided in the DEIS shows that the proposed plan amendment and right-of-way application should be denied because the proposed project will result in significant impacts to a breeding population of flat-tailed homed lizards, which are proposed to be listed under the Endangered Species Act ("ESA"). In addition to direct impacts to the flat-tailed homed lizard, the proposed project is in an area that links the northern and southern populations and management areas for this imperiled species – areas which were set aside for the conservation and recovery of the species. Although the DEIS acknowledges that this site includes documented foraging area for the federally and state endangered Peninsular bighorn sheep (DEIS at C.2-39), the DEIS improperly ignored potential impacts to the bighorn from the loss of this foraging area. Alternative sting, which the BLM failed to adequately address in the DEIS, could significantly reduce the impacts to both of these species, their occupied habitat, and other special status species including potentially rare plants. The Center urges the BLM to revise the DEIS to adequately address these and other issues detailed below and re-circulate the DEIS or a supplemental DEIS for public comment.

02-3

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#### 1 Flat-tailed Horned Lizard

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02-22

In the more than 15 years since this listing was first proposed in 1993, the threats to the flaat-tailed horned lizard have only increased. Clearly the fizard is still in decline, and the Flatt-tailed Horned Lizard Management Areas, the voluntary conservation agreement that has been in place since 1997 and the Rangewide Management Strategy (2003) are not sufficient to protect the survival of the species or contribute to its recovery. Moreover, threats to the species are increasing.

Damage to habitat from off-road vehicles has continued in all flat-tailed homed lizard areas, including the Viha Desert, Coachella Valley, West and East Mesas, near the Algodones Dunes, and near Yuma as well as in other flat-tailed homed lizard habitat. There is increasing ORV use of designated routes as well as increased route proliferation in many areas both within the FTHL Management areas and in lizard habitat outside of these areas. These ongoing and increased impacts remain one of the greatest threats to species survival. Off-road vehicle use and route proliferation both causes direct loss of habitat and increasingly fragments remaining habitats. Habitat fragmentation is a significant factor in decreasing flat-tailed homed lizard survival and may preclude recovery in many areas. A study of flat-tailed homed lizard and other species within a conservation areas found that edge effects from roads had a significant impact on flat-tailed homed lizard populations up to 150 m from roads (as well as impacts from increased predation). Barrows et al. (2006), see also Barrows and Allen (2009) (discussion of habitat loss and high degree of fragmentation in remaining habitats).

Several renewable energy projects are proposed within flat-tailed horned lizard habitat including the proposed project here which includes thousands of acres of flat-tailed horned lizard habitat and the Octillo Express wind project proposal which would cover over 6,000 acres, including many acres of flat-tailed horned lizard habitat. This project could also further fragment the remaining habitat for the species and could block gene flow between the West Mesa and Yuha Desert area populations. In addition, there are at least another five pending right of way applications for both solar and wind projects covering more than 20,000 acres in areas that may include significant lizard habitat some of them adjacent to the management areas. Each of the proposed energy projects will require a new gen-tie power lines that will likely impact lizard habitat and many may also require new substations and other infrastructure that may directly affect lizard habitat. Moreover, these large-scale, single-use projects will displace other multiple uses on public lands and increase the pressure on the FTHL Management areas and other lizard habitat from ORV use.

Loss of habitat due to urban sprawl development and farming was the largest historic threat to the flat-tailed horned lizard. One new sprawl development proposal that may impact flat-tailed horned lizards and their habitat in Imperial County is the Travertine Point which proposes 12,000 housing units on nearly 5,000 acres adjacent to the Salton Sea. In addition, the renewable energy projects, as discussed above, represent another kind of sprawl development that threatens the survival of the species through direct loss of habitat as well as increasing fragmentation of habitat. For this reason, the Center and other conservation groups have advocated for string the new renewable energy projects on previously degraded sites in the desert habitats (including fallowed farmlands) and alternative siting should have been more fully considered here.

The flat-tailed homed lizard has largely been extirpated from the Coachella Valley outside of existing conservation areas and the little remaining habitat in Coachella Valley continues to be lost to sprawl development. Problems with small reserve size, invasive weeds, loss of sand sources, and boundary effects suggest the current Coachella Valley reserve will not

ensure the survival of the flat-tailed horned lizard in the Coachella Valley. Barrows et al. (2006) noted the significant "sink" effect along the boundary areas and cautioned "Without immigration from the preserve core, flat-tailed horned lizards may not be able to sustain populations in the boundary region." This same concern regarding boundary effects arises for the management areas where routes already fragment the management areas and where additional development is proposed on the borders. This project could similarly limit the effectiveness of the FTHL Management areas by fragmenting the habitat and cutting off connectivity between areas.

The Sunrise Powerlink powerline project would also directly impact lizard habitat. This project, if built, will also increase the likelihood that other proposed energy projects will be built in areas that will directly affect the lizard including the proposed project and other such as the Ocotillo wind project and the associated gen-tie lines and substations. Powerlines also provide perches for raptors which then prey on the flat-tailed homed lizards, putting further unnatural predation pressures on this declining species (Barrows, pers. communication).

On-going and increasing impacts to flat-tailed horned lizard habitat near the US-Mexican border in CA and AZ are also of concern particularly off-road vehicle use by border patrol agents (and others). Border Patrol 'tire drags' of dirt roads in lizard habitat are also a problem and continue to kill or injure lizards. The spread of non-native mustards and other invasive plants may also threaten flat-tailed horned lizard habitat viability. Even if exotic plant species do not directly change the habitat character or decrease food sources, many of these invasive weed plants can support and spread fire that could kill or injure lizards in an area where fire would naturally be an extremely rare occurrence (Brooks et al. 2004). The proposed project with its large hydrogen reserves and piping system would also greatly increase the likelihood of fire and the impacts to the lizard and other wildland resources should have been considered in the DEIS but were not

Many of the existing and proposed development projects including the proposed project as well as ORV use will increase the likelihood of predation of flat-tailed horned lizards further diminishing their numbers and ability to survive. Barrows et al. (2006) found a significant increase predation in their study of boundary effects. Increased development provides new roosting and nesting sites for predators including for example shrikes and kestrels which are known predators of the flat-tailed horned lizard. It is well established that increases in subsidies from human activities which provide additional water sources and food/trash also increase other potential predators such as zwens.

The flat-tailed horned lizard as all other species, will be affected by climate change. The Service is well aware of the threats to species due to climate change and in turn the threats to biodiversity across in many diverse ecosystems. In its most recent 2007 report, the Intergovernmental Panel on Climate Change (IPCC) expressed in the strongest language possible its finding that global warming is occurring: "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level" (IPCC 2007: 30). The international scientific consensus of the IPCC is that most of the recent warming observed has been caused by human activities (IPCC 2007). The U.S. Global Change Research Program also stated that "global warming is unequivocal and primarily human-induced" (UCGCRP. 12). One

of the most troubling recent findings is that the concentration of atmospheric carbon dioxide, the biggest contributor to global warming, has been rapidly increasing throughout the 2000s and is generating stronger-than-expected and sooner-than-predicted climate forcing (Raupach et al. 2007).

The global average temperature has risen by approximately 0.74° C ± 0.18° C (1.33° F ± 0.32° F) during the past 100 years (1906-2005) (Trenberth et al. 2007) in response to rapidly increasing greenhouse gas concentrations. Atmospheric concentration of carbon dioxide has increased by 36% since 1750 to a level that has not been exceeded during the past 650,000 years and likely not during the past 20 million years (Denman et al. 2007). The rate of increase in the atmospheric carbon dioxide concentration is accelerating, with especially rapid increases observed in the 2000s. The emissions growth rate rose from 1.1% per year from 1990-1999 to 3.5 % per year from 2000-2007 (McMullen and Jabbour 2009). The emissions growth rate since 2000 has even exceeded that of the most fossil-fuel intensive IPCC SRES emissions scenario, A1FI (McMullen and Jabbour 2009, Richardson et al. 2009). During the past 50 years, carbon dioxide sinks on land and in the oceans have become less efficient in absorbing atmospheric carbon dioxide, which is contributing to the observed rapid rise (Canadell et al. 2007). The atmospheric concentration of methane, another important greenhouse gas, has increased by about 150% since 1750, continues to increase, and has not been exceeded during the past 650,000 years (Forster et al. 2007). Similarly, the atmospheric concentration of nitrous oxide has increased by about 18% since 1750, continues to increase, and has not been exceeded during at least the last 2000 years (Forster et al. 2007). With atmospheric carbon dioxide at ~390 ppm and worldwide emissions continuing to increase, rapid and substantial reductions are clearly needed immediately.

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As scientific understanding of global warming has advanced, so too has the urgency of the warnings from scientists about the consequences of our greenhouse gas emissions for biodiversity loss. Significant and wide-ranging ecological impacts of climate change have been well-documented by thousands of peer-reviewed papers. These impacts include changes in distribution, phenology, physiology, demographic rates, abundance, and genetics (see Lovejoy and Hannah (2005), Parmesan (2006), Hartley et al. (2006) for a small sampling of comprehensive reviews). Studies that have forecast species extinction risk under projected climate conditions have predicted catastrophic species losses during this century. Under a midlevel emissions scenario, Thomas et al. (2004) predicted that climate change will commit 15-37% of species to extinction by 2050. The IPCC found that 20 to 30% of plant and animal species will face an increasingly high risk of extinction as global mean temperatures exceed 2 to 3°C above pre-industrial temperatures (Parry et al. 2007). If current carbon pollution trends continue, the IPCC estimated that climate change will threaten up to 70% of plant and animals with extinction by 2100 (Parry et al. 2007). Therefore, immediate reduction of greenhouse gas pollution is critical to slow global warming and ultimately stabilize the climate system before we commit a significant portion of the world's species to extinction.

Threats to the flat-tailed horned lizard from climate change are significant for several reasons. First, a recent study shows that desert areas may be some of the first affected by increasing temperature and that the changes may be more rapid in these cosystems making adaptation more difficult. Second, the existing and likely increasing fragmentation of the

lizard's habitat by the proposed project and others will make any adaptation through movement across the landscape far more difficult. Thus, the flat-tailed homed lizard although adapted to hot desert environments may nonetheless be significantly impacted by climate change due to its loss of habitat and the constraints on adaptation.

While the FTHL Rangewide Management Strategy (2003) established Management Areas for the conservation and recovery of the flat-tailed homed lizard, it fails to include connectivity corridors that will help to ensure genetic viability of the core Management Areas. The proposed project site clearly supports significant populations of flat-tailed homed lizard – an estimated 2000 – 5000 animals or 0.32-0.81 lizards/acre which provides an important linkage between the adjacent management areas (Yuha and West Mesa). When last surveyed these two "conserved" areas provided only somewhat higher densities than those estimated at the proposed project site. "Which also shows the importance of preserving the habitat here.

Impacts to the flat-tailed horned lizards and other affected species must be avoided where possible through a robust alternatives analysis and any remaining impacts should be minimized and mitigated. Unfortunately, the proposal to relocate flat-tailed horned lizards is not part of a comprehensive proposal but appears to be largely an experiment absent any scientific "controls" that may itself have significant impacts to this imperiled species. The DEIS fails to provide a draft of the relocation plan for public review thus undermining NEPA review. Relocation sites are not identified, nor is the impact to resident flat-tailed horned lizards at the relocation sites analyzed. An analysis of likely impacts from the relocation is particularly important based on data that indicates that food resources are a limiting factor in population numbers<sup>12</sup>. Relocating additional flat-tailed horned lizards into a habitat that is already sustaining its carrying capacity will be detrimental to the species

Furthermore, mechanisms need to be included to assure that any and all mitigation acquisitions will be conserved in perpetuity for the conservation of the flat-tailed homed lizard. If those acquisitions are within existing Management Areas, higher levels of protection than are currently in place for Management Areas need to be put in place. NEPA mandates consideration of the relevant environmental factors and environmental review of "[b]oth short- and long-term effects" in order to determine the significance of the project's impacts. 40 C.F.R. § 1508 27(a) (emphasis added). BLM has clearly failed to do so in this instance with respect to the impact to the flat-tailed homed lizard.

To the extent the DEIS discusses some mitigation measures, the proposal to "nest" mitigation measures undermines much of that discussion. The DEIS proposes to mitigate impacts for flat-tailed homed lizard by land acquisition and management, however, that same mitigation is proposed to also mitigate for several of the impacts to surface waters (including waters of the State) through "nesting" of mitigation. While the Center urges the BLM ensure that any impacts to Waters of the U.S. will be avoided, to the extent that the DEIS considers alternatives that include impacts to the Waters of the U.S. those impacts must be separately mitigated and the mitigation cannot be "nested" with any other mitigation requirement. On the other hand, some of the mitigation issues may pertain primarily to protections afforded by the State (i.e., for waters of the State), however it is important to carefully analyze whether within that structure the proposed 1: I mitigation for flat-tailed horned lizard will adequately mitigate for other resources of these public lands that will be lost should the project be approved as proposed. It is possible that once the acquisition lands are identified and surveyed, this strategy could achieve mitigation for some aspects of the various impacts, however, it is unlikely that it will actually adequately

02-31

mitigate for impacts to a number of the species, the loss of wash habitat, or all of the losses the waters of the State that will be potentially impacted by the proposed project. For example, if mitigation lands are acquired for conservation and they are good flat-tailed horned lizard habitat, they still may not support the same suite of potential rare plants, or similar wash habitat important to bighorn populations in order to effectively mitigate for the impacts of the proposed project on those resources. Very careful selection of mitigation lands will need to be done, and additional lands over and above the 1:1 ratio now proposed for the flat-tailed horned lizard maybe required in order to properly mitigate for the loss of other resources of these public lands that the proposed project will affect including, as noted above, separate mitigation for any impacts to the Waters of the U.S.

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The cumulative scenario in the DEIS fails to adequately identify and analyze the scope of the cumulative impacts to various resources across appropriate scales for each impact. While the DEIS looks at the nearby projects to some extent it ignores other scales of analysis such as across the flat-tailed homed lizard range. For example, the DEIS fails to look at cumulative impacts to the biological resources in the CDCA as a whole from multiple proposed industrial scale projects particularly how sprawling industrial sites could fragment habitats and change the quality of the CDCA overall. In addition, the DEIS should have considered the cumulative impacts to the flat-tailed homed lizard both within Imperial County and the species as a whole including the Coachella Valley and Arizona which are both areas where its habitat has become extremely constricted. Each of these scales of analysis would likely reveal different information about the cumulative impacts of this project. As discussed above, the flat-tailed horned lizard is subject to numerous ongoing and proposed impacts from development including renewable energy development and from off-road vehicle use.

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Because the identification of plant communities and species on site is unfinished and incomplete, the cumulative impacts are also therefore inadequate. Similarly, because impacts to the bighorn were ignored, cumulative impacts to this endangered species were also ignored.

The DEIS also fails to consider all reasonably foreseeable impacts in the context of the cumulative impacts analysis. See Native Ecosystems Council v. Dombek, et al, 304 F.3d 886 (9th Cir. 2002) (finding future timber sales and related forest road restriction amendments were "reasonably foreseeable cumulative impacts"). The DEIS also fails to provide the needed analysis of how the impacts might combine or synergistically interact to affect the environment in this valley or region. See Klamath-Siskiyon Wildlands Ctr. v. BIAM, 387 F.3d 989, 995-96 (9th Cir. 2004).

Flat-tailed Homed Lizard: Although the Flat-tailed Homed Lizard Management Plan' addressed mitigation for the effects of multiple use activities that would impact the species and its habitat, including habitat replacement at a 1:1 ratio outside of designated management areas, it appears the management plan approach to habitat loss and mitigation was based on the assumption that projects that would impact the species and habitat over time would be relatively small and that net losses of habitat and the populations of the species would be greatly minimized by the habitat compensation requirements. The proposed project is unprecedented in seale and perhaps beyond the scope of the analysis and conservation strategy in the management plan with regard to habitat loss impacts for an individual project. Conformance with the policies established in Manual 6840 is particularly important for this species because on March 2, 2010, the Fish and Wildlife Service proposed that it be listed as threatened under the provisions of the Endangered Species Act.

03-5

Recommendation: Analysis of impacts to these two species should be rigorously performed, and the mitigation identified should be to avoid, minimize or compensate for the effects of the proposed project, in priority order. Habitat enhancement opportunities for both species should be identified as part of the impact mitigation strategy involving compensation for habitat loss. Habitat enhancements needed to achieve the no net-loss standard should be identified and included as proposed mitigation measures in addition to compensation for lost habitat. Due to the size of the proposed project, the adequacy of the 1:1 habitat loss compensation ratio should be analyzed and adjusted if deemed necessary to achieve the no net loss outcome. BLM should determine whether or not the proposed project would be consistent with management policy contained in Manuals 6500 and 6540.

03-7

Recommendation: Compensation for lost habitat should include replacement habitat and enhancement of sufficient habitat to fully offset the net loss. Enhancement may require establishment of protected reserves within habitats occupied by the species that are being adversely impacted by multiple use activities.

Our principal concerns with the impacts of the Solar Two project at this time relate to three biological resources: Peninsular bighorn sheep which are federally endangered; the flat-tailed homed lizard, currently proposed for federal listing as threatened; and water resources and the habitat values associated with these resources in a desert environment, see "U.S. Army Corps of Engineers Public Notice/Application No.: SPL 2008-01244-MLM, pg. 11". In addition, we have identified several other issues requiring more robust analysis, namely the use of hydrogen and the potential for project phasing.

<u>Biological Resources</u>: The DEIS treatment of the observance of federally endangered bighom sheep on the project site is particularly deficient. Merely attributing the occurrence of a ewe group of bighom sheep to a "transient occurrence" without further investigation and analysis is inadequate, id. ES-21. The DEIS indicates that the project site provides marginal foraging habitat, id. C.2-18. Under varying precipitation conditions and levels of vegetation growth, marginal foraging habitat may supply an important part of the sheep's diet and could continue to attract foraging activity on an ongoing basis.

The document indicates that Department of Fish and Game biologists, and biologist for the project applicant "have speculated that the bighorn sheep sited at the project location could have been flushed by OHV activity and possibly became disonented and wandered onto the project site," id. C.2-24. While OHV activity in the area can certainly affect movement patterns of sheep, this is not the only possible explanation for the presence of the ewe group on the site, and the DES must not assume that it is. The final EIS must analyze avoidance, minimization and mitigation measures based on the assumption that bighorn sheep will continue to use the site on an ongoing basis for forage as their previous visitation suggests rather than simply dismiss their presence as an anomaly. For example, we would suggest consideration of concrete measures to mitigate for loss of habitat, such as purchase of replacement lands, as well as ongoing monitoring on the site to ensure that any subsequent usage by the sheep is well-documented and any necessary modifications to operations are made.

A second species of concern found on the project site is the flat-tailed horned lizard. As noted above, this species is currently being considered for listing as federally threatened, id. ES-12. Estimates of population in the project area vary w.dely from 2,000 to 5000, id. C.2-22. Greater specificity regarding this population is needed to fully understand possible impacts to this species especially in the context of the pending listing.

The SA/DEIS fails to disclose potentially significant impacts to the Peninsular bighorn sheep ("PBHS") and the FTHL. Both PBHS and FTHL have been "observed on [the] project site" SA/DEIS, pp. C.2-16, C-218, PBHS is listed under the federal Endangered Species Act (61 FR 13134, 13136) and a proposed listing of FTHL is currently under review. SA/DEIS, p. C.2-40 (detailing process that led to a federal court order requiring USFWS to consider listing FTHL). The SA/DEIS also fails to disclose significant impacts to special-status plant species. The deficiencies are exemplified by the SA/DEIS' statement that the significance of biological impacts is "to be provided," in violation of both CEQA and NEPA. ES-15.

Although PBHS was observed on the Project site, the SA/DEIS claims that PBHS' use of the project site "is transitory at best" and that therefore impacts to PBHS would be less than significant. SA/DEIS, p. C.2-40. This conclusion is based solely upon BLM's and the applicant 's 'speculat[ion] that the [PBHS] sited [sic] at the Project location could have been flushed by OHV activity and possibly became disoriented and wandered not the project site." SA/DEIS, p. C.2-24. This is "pure speculation" that "is contradicted by the evidence regarding known [PBHS] behavior." Testimony of Dr. Vernon Bleich on behalf of California Unions for Reliable Energy ("CURE"), Exhibit 400 to opening testimony for CURE, p. 4. It is quite likely that PBHS appear in the Project vicinity on a regular basis. In fact, just three days ago (May 24, 2010), a group of five adult PBHS ewes were seen about 4-5 miles west of the Project site. Comment letter by Denis Trafecanty, sent May 27, 2010, a Nay 27, 2010, a supposed to the project site.

As Dr. Bleich testified, on behalf of California Unions for Reliable Energy ("CURE"), "the SA fails to adequately analyze the potential reason(s) that PBHS were using [the Project site] and, as a result," its conclusions that PBHS' appearance was a mere coincidence are "indefensible." Id. at 1, 5. The SA/DEIS also fails to identify or mitigate impacts to forage habitat, and fails to identify and mitigate the loss of 6,063 acres of bighorn sheep habitat within the CTCRA. See generally id. 5-9. The SA/DEIS' "fail[ure] to adequately identify the[se] significant impacts" is unlawful. Id. at 1.

Furthermore, consultation with the Fish and Wildlife Service regarding the Project's impacts on PBHS is required. The Endangered Species Act specifies that "[T]he agency taking the action must assess the project's effects on endangered or threatened species and consult with the FWS to assure the project's compliance with the ESA." Sierra Club v. Marsh, 816 F.2d 1376 (9th Cir. 1987). "The consultation process is triggered when a federal agency... undertakes any activity which could impact an endangered species or threaten its critical habitat." Florida Key Deer v. Stickney, 864 F.Supp. 1222, 1228 (S.D. Fla. 1994) (citting 16 U.S.C. § 1536(a)(2)) (emphasis in original). Here, as discussed above, the Project "Could" affect the PBHS. Thus, consultation with FWS is mandated.

Scott Cashen, an expert biologist, testified as to the Project's undisclosed impacts on special status plant species and the FTHL. Exhibit 429 to opening testimony for CURE. In his professional opinion, the SA/DEIS contains "inadequate information on the presence of special-status plant species within the Project area" and "as a result ... the SA/DEIS cannot conclude (that] proposed mitigation

O6-8

would reduce Project impacts" on these species "to less than significant levels." Id. at 2; see also mitigation measure BiO-19, SA/DEIS pp. C.2-97 through 100. The size of the buffer zone for special-status plant species is unknown and likely insufficient. Id. at 2-3. Mr. Cashen also testified that the proposed mitigation measures to mitigate impact to non-listed species are unenforceable and that impacts to these species would be significant as well. Id. at 3-4. Unless all required plant surveys are completed before the mitigation measures are adopted, it is impossible to tell whether the mitigation measures will be effective. Id. at 5. Moreover, fall surveys for special-status plant species have not yet been prepared. Id. at 6. Because of these informational inadequacies, the SA/DEIS is legally deficient.

With regard to the FTHL, the SA/DEIS contains no conclusion regarding the Project's impacts. 
"[S]taff is in the process of evaluating if the use of compensation funds is sufficient for CEQA mitigation." SA/DEIS, p. C.2-61. As discussed above, the DEES steef is required to include this information. There is a "possibility that thousands of FTHL will die as a result of the Project", a population of this size is "roughly half the size of the population within the entire West Mesa MA." 
Exhibit 429 to opening testimony for CURE, pp. 8-9. Additionally, "the loss of 6.063 acres of habitat" 
that would accompany the Project "represents a tremendous impact" on the FTHL, which "is proposed for listing due to habitat loss." These impacts must be mitigated before the Project is approved, not after.

The Project also "would cause considerable fragmentation to the remaining FTHL habitat." Id. at 9. Nonetheless, "[t]he SA/DEIS proposed no mitigation for impacts to FTHL movement between MAs." Id. at 11. The SA/DEIS conclusion that such mitigation is infeasible is unsupported by the record. Id. There is no basis to assume that a corridor underneath 1-8 would be impractical. Id. Additionally, the SA/DEIS contemplates that he FTHL "would be moved out of harm's way," SA/DEIS at C2-55, but this strategy "only partially addresses the [FTHL's] survivorship" and, accordingly, only partially mitigates this impact. Exhibit 429 to opening testimony for CURE, p. 12. CEQA requires these potentially significant impacts to be mitigated and the SA/DEIS' failure to do so is unlawful.

Finally, the compensatory mitigation measure, BIO-10, also fails to fully mitigate habitat loss. This measure would allow current habitat to be replaced by "poor quality habitat." SA/DEIS, p. C.2-85. As such, the SA/DEIS fails to "prevent[] a net loss of FTHL habitat," as claimed. Exhibit 429 to opening testimony for CURE, p. 14. O6-8

The Flat-tailed horned lizard (FTHL) is proposed for Federal listing, and adding fragmentation of its habitat to the list of threats would not be wise. This project lies in a poor location, a connectivity corridor between the Yuha Basin management area and West Mesa management area to the north. Currently, there are highways, roads, and rail tracks that act as filters, but not barriers, to lizard movement and population connection. On May 24 and 24, 2010, Cunningham visited the project site and determined that Highway 8 was not a barrier to FTHL crossing. The roadway is low, often a few feet above desert ground level, and has no barrier fencing to prevent lizard access. The entire road adjacent to the project has habitat on both sides. Mortality would occur on the road, but not prevention of crossing. Thus it is not a barrier.

Adding a much wider industrial project into the broad corridor area of the flat desert between management areas would add a greater hindrance of chainlink fencing that would collect debris, increase disturbance, roads and driving during construction, operation, and maintenance. Mortality would increase greatly because of the size of the project.

The applicant indicates that the Coyote Wash underpassing on Highway 8 would be adequate to maintain connectivity after the project is built. But on a site visit, we determined that this is much too small to guarantee movement and genetic connectivity north and south of the project site.

This case is similar to the Ridgecrest Solar Power Project (RSPP) in Kern County, California, where the project would block a 13-mile wide flat gap between mountain ranges, thus cutting off connectivity for Mojave ground squirrels. Staff has recommended against the project because this connectivity cannot be mitigated under NEPA and CEQA.

### Flora / Fauna

 Fall surveys are required for full compliance. 2010 Fall bloom should be exceptional due to a wet year after numerous dry years. The Fall survey is now proposed to take place ofter public review which eliminates any review and comment on impacts and proposed mitigation.

- Any historic information for bloom after the 1976 Hurricane Kathleen should be incorporated since many desert plants can remain dormant unless and until the right amount of rain falls at the right time. See photo below of desert Pickly Poppy bloom after Hurricane Kathleen.
- Jim Andre, a rare plant expert and director of UC Riverside's Sweeney Granite Mountains Desert Research Center in the Mojave National Preserve, has stated 40 % of desert plants bloom in the fail.
- The presence of bighorn sheep on-site cannot be dismissed by stating they were flushed out by OHV activity. Flushed out from where? Wilderness and protected areas?
- What does this say about BLM management abilities?
- Previous BLM plans for the area recognized the project site as bighorn habitat.
- · The on-site presence of pregnant females during lambing season begs further investigation.



OB-19

- What are the potential impacts of having power collected from the SunCatchers to go through a 600 V underground power lines which apparently will collect from the units leaving much of the area not only disturbed by roads, but also by the underground powerlines.
- What are the potential adverse impacts of this amount of cumulative disturbances, from multiple projects, to the soils used by burrowing small mammals and lizards. This disturbance is in addition to the 27 miles of paved arterial roads, 14 miles of unpaved perimeter roads, and approximately 234 miles of unpaved access roads associated with the proposed IV Solar site (SA/DEIS 55-5) for a total of 275 miles of roads.
- · Cumulative impacts to bighorn sheep habitat and corridors
- Indirect and cumulative impacts associated with noise and vibrations that travel through the soil
- We disagree with applicant expert's position that I-8 represents a barrier for ITI IL.

watershed. For the most part, these impacts were not even disclosed and, therefore, were not analyzed or mitigated in the DEIS. In addition, according to the DEIS, the Project may result in the mortality of potentially thousands of flat-tailed horned lizards, a species currently proposed for listing under the Federal Endangered Species Act. However, the mitigation strategy for reducing these impacts to less than significant has not been developed and, therefore, has not been disclosed. The BLM and USFWS continue to evaluate proposals to design a translocation plan but the details were not analyzed in the SA/DEIS and are not vet finalized.

## B. THE DEIS FAILED TO ANALYZE SIGNIFICANT INDIRECT IMPACTS TO FLAT TAILED HORNED LIZARD

The proposed Project site is within an area that is relatively undisturbed, and that provides generally continuous connectivity of natural community types from the southern extent of the Yuha Desert MA to the

northern extent of the West Mesa MA. The applicant has proposed locating the Project in the middle of this undisturbed landscape. Placing the Project in the proposed location would cause considerable fragmentation to the remaining FTHL habitat outside of the MAs. The fragmentation that would be caused by the proposed Project would have numerous biological consequences that were not mitigated in the DEIS. Two of these consequences, "edge effects" and loss of connectivity, are likely to be particularly severe on the FTHL population.

#### a. Edge Effects

The DEIS failed to analyze the offsite impacts on FTHL near the project site. FTHL are particularly vulnerable to boundary processes between natural and anthropogenic desert landscapes. §7 Given the configuration of the Project, and assuming an edge effect to 450 meters, biologist Scott Cashen estimates that the Project will have an indirect, adverse effect on 2,800 acres outside of the Project boundaries. Not only are these impacts substantial, but they would extend into the Yuha Desert MA, thus reducing its value as a reserve. Incredibly, although the literature is unequivocal about adverse edge effects on FTHL, the DEIS fails to adequately analyze or mitigate this impact.

09-4

O9-28

09-28

# A. THE DEIS FAILS TO CONSIDER EFFECTIVE MITIGATION FOR IMPACTS TO FTHL

The DEIS proposes removal surveys as mitigation to move FTHL "out of harm's way." 120 However, the DEIS fails to provide enough detail about this mitigation effort to show that it would be effective or feasible.

FTHLs are notoriously difficult to detect. Any FTHL that remain on the site after the clearance surveys will likely die during Project construction and operation. The DEIS lacks any information on translocation sites, the habitat suitability of those sites, and the monitoring that will accompany translocation. Although the comment period is about to close on the DEIS, the Applicant has just provided a draft plan to the BLM, which has not been disclosed to the public. <sup>121</sup> This draft translocation plan for FTHL is a critical part of the mitigation strategy that must be included in a revised DEIS and circulated to the public for review and comment.

A translocation plan must contain an assessment of potential release sites, with special attention dedicated to evaluating the factors that limit the distribution and abundance of FTHLs. The translocation plan must also include an appraisal of probable dispersal patterns, a detailed description of how FTHLs will be detected, and a means of documenting the effectiveness of the detection techniques. <sup>122</sup>

The DEIS indicates:

"[r]emoval surveys would be conducted by experience [sic] biological monitors only during appropriate survey conditions. The surveys shall be conducted from April 1 through September 30 when air temperatures are between 25 and 37°C (75 and 100°F). Surveys would not be conducted during inclement weather conditions (e.g., rain, high winds) that could affect the movement of FTHLs. FTHL removal from the area could continue outside of protocol survey periods since the intent is to move animals from harm's way."

The DEIS should define what constitutes an experienced biological monitor and specify how the measure will be verified. Given the difficulty of detecting FTHL and the typically low FTHL detection rates, the monitor(s) should have prior experience conducting FTHL clearance surveys. Further, the surveys must not be allowed outside of protocol survey periods. There is no scientific basis for allowing clearance surveys outside of the protocol survey period, and it should not be allowed. The RMS dictates all surveys should be conducted from April through September.

Additionally, the mitigation proposed by the DEIS improperly allows a net loss of FTHL habitat. To mitigate for habitat loss and potential take of FTHL, the DEIS requires the project owner to pay the BLM a monetary equivalent for 6,619.9 acres of "land suitable for these species." However, Condition of Certification BIO-10 negates the ability of the proposed compensation to fully mitigate habitat loss by allowing (a) compensation lands to be "poor quality habitat"; and (b) compensation funds to be applied to educational purposes or management actions "deemed necessary by the FTHL ICC." By authorizing these uses, the DEIS conflicts with the RMS's stated coal of preventing a net loss of FTHL habitat.

The DEIS fails to require compensation for impacts along the proposed reclaimed water pipeline route. The DEIS justifies this omission by stating "the construction activities would occur mainly in the developed/disturbed portions in and along the Evan Hewes Highway." This justification is inappropriate because approximately 45 percent (13 acres) of the pipeline route will be within native habitat. Therefore, the DEIS has failed to address the indirect impacts posed by the water pipeline.

The DEIS must be revised to address indirect impacts to FTHL caused by the proposed water pipeline. The RMS states:

A project's indirect effects on FTHLs should be considered when determining compensation. For example, ROW grants for aboveground structures such as roads, pipelines, towers, or similar facilities can have adverse impacts to FTHLs beyond the areas that are proposed to be disturbed. First, such disturbances have been shown to attract FTHL predators. For example, roads may attract round-tailed ground squirrels (Garland and Bradley 1984), and towers can provide perching areas for loggerhead shrikes and American kestrels. Second, construction vehicles can introduce invasive weeds that degrade FTHL habitat. Last, vehicles from increased authorized and unauthorized traffic on maintenance roads can cause FTHL mortality. If these and other adverse indirect effects (e.g., habitat fragmentation, decreased

FTHL density near roads) cannot be mitigated (with FTHL barriers or corridors, for e.g.), compensation for indirect effects will be required.

The DEIS fails to mitigate potentially significant impacts to FTHL from pipeline development, loss of connectivity between MAs and edge effects. The DEIS should be revised to include mitigation for these impacts and to clarify the details of the mitigation proposal for FTHL translocation and compensation.

09-43

First, impacts to biological resources would be server. This area is important habitat for the fial-tail homed lizard (FTHL), as BLM sensitive species. The FTHL will probably be listed as a threatment species soon, and this project would cetarize push the FTHL over the brink into that status. BLM should not allow further destruction of this similar's habitat. Other sensitive species have been observed on this size as well, including burrowing only, Rif (bace, and endangered perinausity bighom sheep. The dismissal of the presence of prointsular bighom sheep as 'a transient occurrence' does not excuse the fact that the construction of this project could take away migration and froging habitat for bighom sheep in the future.

P7-3

Response: These comments raised concerns about the adequacy of the proposed measures to address take of FTHL and the adequacy of the analysis of cumulative impacts, habitat fragmentation, and population densities in the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS). The applicant has proposed to offset project related impacts to and loss of FTHL by implementing measures pursuant to the Flat-Tailed Horned Lizard Rangewide Management Strategy (Strategy). The Strategy was published by the FTHL Interagency Coordinating Committee (ICC) to ensure FTHL and its habitats are managed appropriately. The ICC consists of the United States Fish and Wildlife Service (USFWS), California Department of Fish and Game, BLM, United States Marine Corps, United States Navy, and Arizona Game and Fish.

Pursuant to the Strategy, the applicant will provide the BLM with funds to acquire 6,619.9 acres (ac) of land for preservation of FTHL habitat. In addition to habitat acquisition, as part of the USFWS conferencing, additional conservation measures will be required. The Strategy has been the guiding document for mitigation for FTHL take within the known range of FTHL in the United States. The Strategy has been accepted as suitable for guiding FTHL mitigation within FTHL range. The species is currently proposed for listing pursuant to the Federal Endangered Species Act. If listed, it is unknown at this time if the USFWS would adopt the current Strategy as appropriate mitigation guidelines for unavoidable adverse impacts to FTHL. The USFWS is a coordinating agency for the Strategy. Implementation of measures in accordance with the Strategy is currently accepted to offset impacts to FTHL.

As noted, the Strategy was designed to offset impacts to FTHL. Indirect impacts and fragmentation were also considered in the preparation of the Strategy and the measures to offset impacts to FTHL.

FTHL population densities on the IVS project site were estimated based on extrapolation of data from the Yuha FTHL MA. The Yuha FTHL MA is comprised of better FTHL habitat than on the IVS project site and along the alignment of the water pipeline. The Yuha FTHL MA has one of the densest known populations of FTHL in the Yuha Desert. The BLM considers the population density estimates for the IVS project site extrapolated from known densities in the Yuha FTHL MA as acceptable for purposes of impact analysis.

F2-28

# D.4.7.6 Flat-Tailed Horned Lizard Relocation

Comments: F2-28, NA1-11, NA1-15, O2-10, O2-16, O2-22, O3-5, O3-7, O6-8, O7-7, O7-8, O9-43, and P11-31.

Additionally, over 6,000 acres of Flat-Tailed Horned Lizard (FTHL) habitat would be permanendly impacted by the proposed Project (at pg. C.2-60). Long-term impacts may occur as a result of permanent loss of habitat, increased predation, and habitat fragmentation. Approximately 50% of the historical range of FTHL in California has been destroyed mainly by agricultural and urban development (at pg. C.2-71). Although FTHL is not currently listed, UFWS was recently instructed by federal district court to reinstate the proposal to list FTHL under the Endangered Species Act (ESA). EPA appreciates the extensive discussion on the impacts to FTHL as well the proposed mitigation measures and compensatory mitigation for approximately 6,600 acres of habitat, as directed by the FTHL Rangewide Management Strategy. The DEIS indicates that if listing of FTHL species should take place during the construction or

operation of the Project, the potential take and loss of habitat for the FTHL would need to be addressed by the BLM, in conferencing with the USFWS (at pg. C.2-1).

Cumulative impacts on flat-tailed horned lizard habitat also deserve additional attention. DEIS, Biological Resources, page C.2-21 acknowledges that "the FTHL populations have declined throughout their range because of loss and degradation of habitat caused by urbanization, agricultural development, military activities, recreational OHV use, and Border Patrol and illegal drive-through traffic." The Flat-tailed Horned Lizard Rangewide Management Strategy, page 45, confirms that it is necessary to "maintain or establish effective habitat corridors between naturally adjacent populations." The DEIS fails to adequately address how the

development of approximately one million acres of renewable energy projects in this area will impact the FTHL and its habitat.

# H. The Project Will Have Unacceptable Impacts to the Flat-Tailed Horned Lizard.

The DEIS acknowledges that the Flat-Tailed Homed Lizard (FTHL) is known to exist in the project area. DEIS, Biological Resources, C.2-22. The FTHL is proposed for listing on the Endangered Species Act and final action on the proposed listing is likely to occur this year. The lizard is also culturally significant to the Quechan Tribe, as it is part of the Tribe's creation story. The DEIS acknowledges that this Project could result in direct mortality, injury, and harassment of lizards. DEIS, at C.2-40. This is another reason why the Tribe supports a no-action alternative here.

The mitigation proposed in the DEIS for impacts to the FTHL requires removal surveys to occur prior to construction activities. DEIS, C.2-83. However, the Flat-tailed Horned Lizard Rangewide Management Strategy notes that once the FTHLs are relocated to another area, their rate of mortality often increases due to the change in environment. Thus, while removal of the lizards may avoid direct mortality resulting from the construction and operation of this project, it may result in indirect mortality due to the change in habita.

In light of the need to conduct the removal surveys, no construction should be permitted to occur until Fall of 2011, at the earliest, to allow for completion of surveys. Removal surveys are to be performed between April 1 and September 30 to account for the time period when the lizards are most active and out of hibernation. Since no decision will be made on this project until at least September 2010, the removal surveys would need to occur the following year, between April 1 and September 30, 2011, with no construction beginning until after that date.

The DEIS's failure to adequately identify or analyze many of the significant impacts to the flat-tailed horned lizard population in the area from direct impacts (loss of habitat, fragmentation, take due to translocation, etc.) indirect impacts, and cumulative impacts is discussed in detail below. In addition, BLM provides no meaningful analysis of how the actual use of the adjacent areas might change if a large 6,000+ acre fenced industrial project site is constructed, particularly with regards to recreational activities. Nor there any discussion of the impacts of increased and more concentrated off-road recreation at the translocation sites for the flat-tailed horned lizard from those displaced from the project site, or, more to the point, the need to reduce recreation in areas any translocation areas after flat-tailed horned lizard are removed from the project site under a translocation plan. <sup>3</sup> The DEIS for the proposed plan amendment should at minimum have included an alternative that would limit impacts to the lizards from off-road vehicle use in the translocation areas.

NA1-15

O2-10

The DEIS appears to rely heavily on conclusory statements and many critical issues have not been fully identified and analyzed in the DEIS. Moreover not all of the references are readily available and in several instances the DEIS relies on personal communications without any documentation for critical assumptions such as the success of flat-hailed horned lizard translocation, ignoring other data and scientific evidence. For example, the DEIS states:

"The FTHL would be moved out of harm's way in coordination with the FTHL ICC. The FTHL ICC may choose to relocate the salvaged FTHL from the SES Solar Two project to several suitable sites within protect FTHL habitat or possibly conduct field research on FTHL. Decisions regarding the salvaged FTHL should be determined by the BLM in cooperation with the FTHL ICC prior to publication of the Staff Assessment/Final Environmental Impact Statement (Steward 2010)"

O2-16

DEIS C.2-21. The reference given is "Steward, D., 2010 – Telephone conversation between Daniel Steward, Acting Field Manager for the Bureau of Land Management, El Centro, California office, and Joy Nishida, California Energy Commission. January 6, 2010." No other references are discussed or provided for this critical issue. No data are provided that relocation of flat-tailed horned lizard has ever proven to be a successful minimization or mitigation measure. It does not appear that the BLM had sufficient time or made sufficient effort to obtain current information or to accurately address the issue of mortality to the flat-tailed horned lizard from relocation as well as many other issues.

Similarly, the DEIS notes that "The USFWS, CDFG, and BLM biologists are in agreement that the siting [sic] of bighorn sheep on the site in spring 2009 was an unusual

occurrence and is unlikely to occur again" (DEIS at C.2-40) yet no citation or reference is included as a basis for this assumption, no independent bighom biologist was contacted for input, nor is there any other information provided as to the basis of these conclusions are provided. The DEIS does not describe whether any surveys were conducted for bighorn or sign, the methodology and results of such surveys if any, and if no surveys were conducted the reason for that omission. Further, additional sightings of bighorn have been reported on the site of the proposed project, some as recently as this week.

O2-16

These examples show a lack of attention to detail in preparing the DEIS and in consideration of the proposed project as well. When BLM revises the DEIS, as it must, the Center hopes and expects that BLM will remedy the errors noted as well as provide a more considered analysis of the impacts of the proposed project.

### 1. Flat-tailed Horned Lizard

Declines in populations of and habitat for the flat-tailed homed lizard were noted for decades resulting in a proposed listing of the species in 1993. Several legal challenges have resulted in the U.S. Fish and Wildlife Service currently reviewing data to determine if the species needs federal Endangered Species Act protection. Threats to the flat-tailed horned lizard are abundant from its small geographic range, it specialized and highly fragmented habitat, its sensitivity to anthropogenic effects, its narrow breadth of diet (almost exclusively harvester ants), and the lowest rates of reproduction of all known horned lizards. All of these factors highlight the potential risk of local and regional extinctions for this species.

02-22

In the more than 15 years since this listing was first proposed in 1993, the threats to the flat-tailed horned lizard have only increased. Clearly the lizard is still in decline, and the Flat-tailed Horned Lizard Management Areas, the voluntary conservation agreement that has been in place since 1997 and the Rangewide Management Strategy (2003) are not sufficient to protect the survival of the species or contribute to its recovery. Moreover, threats to the species are increasing.

Damage to habitat from off-road vehicles has continued in all flat-tailed horned lizard areas, including the Yuha Desert, Coachella Valley, West and East Mesas, near the Algodones Dunes, and near Yuma as well as in other flat-tailed horned lizard habitat. There is increasing ORV use of designated routes as well as increased route proliferation in many areas both within he FTHL Management areas and in lizard habitat outside of these areas. These ongoing and increased impacts remain one of the greatest threats to species survival. Off-road vehicle use and route proliferation both causes direct loss of habitat and increasingly fragments remaining habitats. Habitat fragmentation is a significant factor in decreasing flat-tailed horned lizard survival and may preclude recovery in many areas. A study of flat-tailed horned lizards and other species within a conservation areas found that edge effects from roads had a significant impact on flat-tailed horned lizard populations up to 150 m from roads (as well as impacts from increased predation). Barrows et al. (2006), see also Barrows and Allen (2009) (discussion of habitat loss and high degree of fragmentation in remaining habitats).

Several renewable energy projects are proposed within flat-tailed horned lizard habitat coulding the proposed project here which includes thousands of acres of flat-tailed horned lizard habitat and the Octille Express wind project proposal which would cover over 6,000 acres, including many acres of flat-tailed horned lizard habitat. This project could also further fragment the remaining habitat for the species and could block gene flow between the West Mesa and Yuha Desert area populations. In addition, there are at least another five pending right of way applications for both solar and wind projects covering more than 20,000 acres in areas that may include significant lizard habitat some of them adjacent to the management areas. Each of the proposed energy projects will require a new gen-tie power lines that will likely impact lizard habitat and many may also require new substations and other infrastructure that may directly affect lizard habitat. Moreover, these large-scale, single-use projects will displace other multiple uses on public lands and increase the pressure on the FTHL Management areas and other lizard habitat from QKV use.

Loss of habitat due to urban sprawl development and farming was the largest historic threat to the flat-tailed horned lizard. One new sprawl development proposal that may impact flat-tailed horned lizards and their habitat in Imperial County is the Travertine Point which proposes 12,000 housing units on nearly 5,000 acres adjacent to the Salton Sea. <sup>10</sup> In addition, the renewable energy projects, as discussed above, represent another kind of sprawl development that threatens the survival of the species through direct loss of habitat as well as increasing fragmentation of habitat. For this reason, the Center and other conservation groups have advocated for sting the new renewable energy projects on previously degraded sites in the desert habitats (including fallowed farmlands) and alternative siting should have been more fully considered here.

The flat-tailed horned lizard has largely been extirpated from the Coachella Valley outside of existing conservation areas and the little remaining habitat in Coachella Valley continues to be lost to sprawl development. Problems with small reserve size, invasive weeds, loss of sand sources, and boundary effects suggest the current Coachella Valley reserve will not

ensure the survival of the flat-tailed horned lizard in the Coachella Valley. Barrows et al. (2006) noted the significant "sink" effect along the boundary areas and cautioned "Without immigration from the preserve core, flat-tailed horned lizards may not be able to sustain populations in the boundary region." This same concern regarding boundary effects arises for the management areas where routes already fragment the management areas and where additional development is proposed on the borders. This project could similarly limit the effectiveness of the FTHL Management areas by fragmenting the habitat and cutting off connectivity between areas.

The Sunrise Powerlink powerline project would also directly impact lizard habitat. This project, if built, will also increase the likelihood that other proposed energy projects will be built in areas that will directly affect the lizard including the proposed project and other such as the Ocotillo wind project and the associated gen-tie lines and substations. Powerlines also provide perches for raptors which then prey on the flat-tailed homed lizards, putting further unnatural predation pressures on this declinine species (Barrows, pers, communication).

On-going and increasing impacts to flat-tailed homed lizard habitat near the US-Mexican border in CA and AZ are also of concern particularly off-road which use by border patrol agents (and others). Border Patrol vite drags of dirt roads in lizard habitat are also a problem and continue to kill or injure lizards. The spread of non-native mustards and other invasive plants may also threaten flat-tailed homed lizard habitat viability. Even if exotic plant species do not directly change the habitat character or decrease food sources, many of these invasive weed plants can support and spread fire that could kill or injure lizards in an area where fire would naturally be an extremely rare occurrence (Brooks et al. 2004). The proposed project with its large hydrogen reserves and piping system would also greatly increase the likelihood of fire and the impacts to the lizard and other wildland resources should have been considered in the DEIS but were not.

Many of the existing and proposed development projects including the proposed project as well as ORV use will increase the likelihood of predation of flat-tailed horned lizards further diminishing their numbers and ability to survive. Barrows et al. (2006) found a significant increase predation in their study of boundary effects. Increased development provides new roosting and nesting sites for predators including for example shrikes and kestrels which are known predators of the flat-tailed horned lizard. It is well established that increases in subsidies from human activities which provide additional water sources and food/trash also increase other potential predators such as ravens.

The flat-tailed homed lizard as all other species, will be affected by climate change. The Service is well aware of the threats to species due to climate change and in turn the threats to biodiversity across in many diverse ecosystems. In its most recent 2007 report, the Intergovernmental Panel on Climate Change (IPCC) expressed in the strongest language possible its finding that global warming is occurring: "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level" (IPCC 2007: 30). The international scientific consensus of the IPCC is that most of the recent warming observed has been caused by human activities (IPCC 2007). The U.S. Global Change Research Program also stated that "global warming is unequivocal and primarily human-induced" (UCGCRP, 12). One

of the most troubling recent findings is that the concentration of atmospheric carbon dioxide, the biggest contributor to global warming, has been rapidly increasing throughout the 2000s and is generating stronger-than-expected and sooner-than-predicted climate forcing (Raupach et al. 2007).

The global average temperature has risen by approximately  $0.74^{\circ}$  C  $\pm$   $0.18^{\circ}$  C  $(1.33^{\circ}$  F  $\pm$ 0.32° F) during the past 100 years (1906-2005) (Trenberth et al. 2007) in response to rapidly increasing greenhouse gas concentrations. Atmospheric concentration of carbon dioxide has increased by 36% since 1750 to a level that has not been exceeded during the past 650,000 years and likely not during the past 20 million years (Denman et al. 2007). The rate of increase in the atmospheric carbon dioxide concentration is accelerating, with especially rapid increases observed in the 2000s. The emissions growth rate rose from 1.1% per year from 1990-1999 to 3.5 % per year from 2000-2007 (McMullen and Jabbour 2009). The emissions growth rate since 2000 has even exceeded that of the most fossil-fuel intensive IPCC SRES emissions scenario, A1FI (McMullen and Jabbour 2009, Richardson et al. 2009). During the past 50 years, carbon dioxide sinks on land and in the oceans have become less efficient in absorbing atmospheric carbon dioxide, which is contributing to the observed rapid rise (Canadell et al. 2007). The atmospheric concentration of methane, another important greenhouse gas, has increased by about 150% since 1750, continues to increase, and has not been exceeded during the past 650,000 years (Forster et al. 2007). Similarly, the atmospheric concentration of nitrous oxide has increased by about 18% since 1750, continues to increase, and has not been exceeded during at least the last 2000 years (Forster et al. 2007). With atmospheric carbon dioxide at ~390 ppm and worldwide emissions continuing to increase, rapid and substantial reductions are clearly needed immediately.

02-22

As scientific understanding of global warming has advanced, so too has the urgency of the warnings from scientists about the consequences of our greenhouse gas emissions for biodiversity loss. Significant and wide-ranging ecological impacts of climate change have been well-documented by thousands of peer-reviewed papers. These impacts include changes in distribution, phenology, physiology, demographic rates, abundance, and genetics (see Lovejoy and Hannah (2005), Parmesan (2006), Hartley et al. (2006) for a small sampling of comprehensive reviews). Studies that have forecast species extinction risk under projected climate conditions have predicted catastrophic species losses during this century. Under a midlevel emissions scenario, Thomas et al. (2004) predicted that climate change will commit 15-37% of species to extinction by 2050. The IPCC found that 20 to 30% of plant and animal species will face an increasingly high risk of extinction as global mean temperatures exceed 2 to 3°C above pre-industrial temperatures (Parry et al. 2007). If current carbon pollution trends continue, the IPCC estimated that climate change will threaten up to 70% of plant and animals with extinction by 2100 (Parry et al. 2007). Therefore, immediate reduction of greenhouse gas pollution is critical to slow global warming and ultimately stabilize the climate system before we commit a significant portion of the world's species to extinction.

Threats to the flat-tailed horned lizard from climate change are significant for several reasons. First, a recent study shows that desert areas may be some of the first affected by increasing temperature and that the changes may be more rapid in these ecosystems making adaptation more difficult. Second, the existing and likely increasing fragmentation of the

lizard's habitat by the proposed project and others will make any adaptation through movement across the landscape far more difficult. Thus, the flat-tailed homed lizard although adapted to hot desert environments may nonetheless be significantly impacted by climate change due to its loss of habitat and the constraints on adaptation.

While the FTHL Rangewide Management Strategy (2003) established Management Areas for the conservation and recovery of the flat-tailed horned lizard, it fails to include connectivity corridors that will help to ensure genetic viability of the core Management Areas. The proposed project site clearly supports significant populations of flat-tailed horned lizard – an estimated 2000 – 5000 animals or 0.32-0.81 lizard/sacre which provides an important linkage between the adjacent management areas (Yuha and West Mesa). When last surveyed these two "conserved" areas provided only somewhat higher densities than those estimated at the proposed project site." Which also shows the importance of preserving the habitat here.

Impacts to the flat-tailed homed lizards and other affected species must be avoided where possible through a robust alternatives analysis and any remaining impacts should be minimized and mitigated. Unfortunately, the proposal to relocate flat-tailed homed lizards is not part of a comprehensive proposal but appears to be largely an experiment absent any scientific "controls" that may itself have significant impacts to this imperiled species. The DEIS fails to provide a draft of the relocation plan for public review thus undermining NEPA review. Relocation sites are not identified, nor is the impact to resident flat-tailed horned lizards at the relocation sites analyzed. An analysis of likely impacts from the relocation is particularly important based on data that indicates that food resources are a limiting factor in population numbers<sup>12</sup>. Relocating additional flat-tailed homed lizards into a habitat that is already sustaining its carrying capacity will be detrimental to the species

Furthermore, mechanisms need to be included to assure that any and all mitigation acquisitions will be conserved in perpetuity for the conservation of the flat-tailed horned lizard. If those acquisitions are within existing Management Areas, higher levels of protection than are currently in place for Management Areas need to be put in place. NEPA mandates consideration of the relevant environmental factors and environmental review of "[b]oth short- and long-term effects" in order to determine the significance of the project's impacts. 40 C.F.R. § 1508.27(a) (emphasis added). BLM has clearly failed to do so in this instance with respect to the impact to the flat-tailed horned lizard.

Flat-tailed Horned Lizard: Although the Flat-tailed Horned Lizard Management Plan¹ addressed mitigation for the effects of multiple use activities that would impact the species and its habitat, including habitat replacement at a 1:1 ratio outside of designated management areas, it appears the management plan approach to habitat loss and mitigation was based on the assumption that projects that would impact the species and habitat over time would be relatively small and that net losses of habitat and the populations of the species would be greatly minimized by the habitat compensation requirements. The proposed project is unprecedented in scale and perhaps beyond the scope of the analysis and conservation strategy in the management plan with regard to habitat loss impacts for an individual project. Conformance with the policies established in Manual 6840 is particularly important for this species because on March 2, 2010, the Fish and Wildlife Service proposed that it be listed as Interactioned under the provisions of the Endangered Species Act.

03-5

Recommendation: Analysis of impacts to these two species should be rigorously performed, and the mitigation identified should be to avoid, minimize or compensate for the effects of the proposed project, in priority order, Habitat enhancement opportunities for both species should be identified as part of the impact mitigation strategy involving compensation for habitat loss. Habitat enhancements needed to achieve the no net-loss standard should be identified and included as proposed mitigation measures in addition to compensation for lost habitat. Due to the size of the proposed project, the adequacy of the 1:1 habitat loss compensation ratio should be analyzed and adjusted if deemed necessary to achieve the no net loss outcome. BLM should determine whether or not the proposed project would be consistent with management policy contained in Manuals 6500 and 6840.

03-7

The SA/DEIS fails to disclose potentially significant impacts to the Peninsular bighorn sheep ("PBHS") and the FTHL. Both PBHS and FTHL have been "observed on [the] project site" SA/DEIS, pp. C.2-16, C-218. PBHS is listed under the federal Endangered Species Act (61 FR 13134, 13136) and a proposed listing of FTHL is currently under review. SA/DEIS, p. C.2-40 (detailing process that led to a federal court order requiring USFWS to consider listing FTHL). The SA/DEIS also fails to disclose significant impacts to special-status plant species. The deficiencies are exemplified by the SA/DEIS' statement that the significance of biological impacts is "to be provided," in violation of both CEQA and NEPA. ES-15.

Although PBHS was observed on the Project site, the SA/DEIS claims that PBHS' use of the project site "is transitory at best" and that therefore impacts to PBHS would be less than significant. SA/DEIS, p. C.2-40. This conclusion is based solely upon BLM's and the applicant's "speculat[ion] that the [PBHS] sited [sic] at the Project location could have been flushed by OHV activity and possibly became disoriented and wandered onto the project site." SA/DEIS, p. C.2-24. This is "pure speculation" that "is contradicted by the evidence regarding known [PBHS] behavior." Testimony of Dr. Vernon Bleich on behalf of California Unions for Reliable Energy ("CURE"), Exhibit 400 to opening testimony for CURE, p. 4. It is quite likely that PBHS appear in the Project vicinity on a regular basis. In fact, just three days ago (May 24, 2010), a group of five adult PBHS wese were seen about 4-5 miles west of the Project site. Comment letter by Denis Trafecanty, sent May 27, 2010, p. 1.

O6-8

As Dr. Bleich testified, on behalf of California Unions for Reliable Energy ("CURE"), "the SA fails to adequately analyze the potential reason(s) that PBHS were using [the Project site] and, as a result," its conclusions that PBHS appearance was a mere coincidence are "indefensible." Id. at 1, 5. The SA/DEIS also fails to identify or mitigate impacts to forage habitat, and fails to identify and mitigate the loss of 6,063 acress of bighorn sheep habitat within the CTCRA. See generally id. 5-9. The A/DEIS' "faillure"] to adequately identify the[se] significant impacts" is unlawful. Id. at 1.

Furthermore, consultation with the Fish and Wildlife Service regarding the Project's impacts on PBHS is required. The Endangered Species Act specifies that "[I]he agency taking the action must assess the project's effects on endangered or threatened species and consult with the FWS to assure the project's compliance with the ESA." Sterra Club v. Marsh, 816 F.2d 1376 (9th Cir. 1987). "The consultation process is triggered when a federal agency . . . undertakes any activity which could impact an endangered species or threaten its critical habitat." Florida Key Deev Stickney, 86 F.Supp. 122. (228 (S.D. Fla. 1994) (citing 16 U.S.C. § 1536(a)(2)) (emphasis in original). Here, as discussed above,

Scott Cashen, an expert biologist, testified as to the Project's undisclosed impacts on special status plant species and the FTHL. Exhibit 429 to opening testimony for CURE. In his professional opinion, the SA/DEIS contains "inadequate information on the presence of special-status plant species within the Project area" and "as a result ... the SA/DEIS cannot conclude [that] proposed mitigation

the Project "could" affect the PBHS. Thus, consultation with FWS is mandated.

would reduce Project impacts" on these species "to less than significant levels." Id. at 2; see also mitigation measure Biol-19, SA/DEIS pp. C.2-97 through 100. The size of the buffer zone for special status plant species is unknown and likely insufficient. Id. at 2-3. Mr. Cashen also testified that the proposed mitigation measures to mitigate impact to non-listed species are unenforceable and that impacts to these species would be significant as well. Id. at 3-4. Unless all required plant surveys are completed before the mitigation measures are adopted, it is impossible to tell whether the mitigation measures will be effective. Id. at 5. Moreover, fall surveys for special-status plant species have not yet been prepared, Id. at 6. Because of these informational inadequacies, the SA/DEIS is legally deficient.

With regard to the FTHL, the SA/DEIS contains no conclusion regarding the Project's impacts. 
"[S]taff is in the process of evaluating if the use of compensation funds is sufficient for CEQA 
mitigation." SA/DEIS, p. C.2-61. As discussed above, the DEE Steef! is required to include this 
information. There is a "possibility that thousands of FTHL will die as a result of the Project"; a 
population of this size is "roughly half the size of the population within the entire West Mesa MA." 
Exhibit 429 to opening testimony for CLIRE, pp. 8-9. Additionally, "the loss of 6.053 acres of habitat" 
that would accompany the Project "represents a tremendous impact" on the FTHL, which "is proposed 
for listing due to habitat loss." These impacts must be mitigated before the Project is approved, not 
after.

The Project also "would cause considerable fragmentation to the remaining FTHL habitat." Id. at 9. Nonetheless, "[id. 8A/DEIS" conclusion that such mitigation is infeasible is unsupported by the record. Id. at 11. The SA/DEIS conclusion that such mitigation is infeasible is unsupported by the record. Id. There is no basis to assume that a corridor underneath 1-8 would be impractical. Id. Additionally, the SA/DEIS contemplates that the FTHL "would be moved out of harm's way," SA/DEIS at C.2-55, but this strategy "only partially addresses the FTHL's] survivorship" and, accordingly, only partially mitigates this impact. Exhibit 429 to opening testimony for CURE, p. 12. CEQA requires these potentially seinficant impacts to be mitieated and the SA/DEIS failure to do so is unlawful.

Finally, the compensatory mitigation measure, BIO-10, also fails to fully mitigate habitat loss. This measure would allow current habitat to be replaced by "poor quality habitat." SA/DEIS, p. C.2-85. As such, the SA/DEIS fails to "prevent[] a net loss of FTHL habitat," as claimed. Exhibit 429 to opening testimony for CIRE. p. 14.

The Flat-tailed horned lizard (FTHL) is proposed for Federal listing, and adding fragmentation of its habitat to the list of threats would not be wise. This project lies in a poor location, a connectivity corridor between the Yuha Basin management area and West Mesa management area to the north. Currently, there are highways, roads, and rail tracks that act as filters, but not barriers, to lizard movement and population connection. On May 24 and 24, 2010, Cunningham visited the project site and determined that Highway 8 was not a barrier to FTHL crossing. The roadway is low, often a few feet above desert ground level, and has no barrier fencing to prevent lizard access. The entire road adjacent to the project has habitat on both sides. Mortality would occur on the road, but not prevention of crossing. Thus it is not a barrier.

Adding a much wider industrial project into the broad corridor area of the flat desert between management areas would add a greater hindrance of chainlink fencing that would collect debris, increase disturbance, roads and driving during construction, operation, and maintenance. Mortality would increase greatly because of the size of the project.

The applicant indicates that the Coyote Wash underpassing on Highway 8 would be adequate to maintain connectivity after the project is built. But on a site visit, we determined that this is much too small to guarantee movement and genetic connectivity north and south of the project site.

This case is similar to the Ridgecrest Solar Power Project (RSPP) in Kern County, California, where the project would block a 13-mile wide flat gap between mountain ranges, thus cutting off connectivity for Mojave ground squirrels. Staff has recommended against the project because this connectivity cannot be mitigated under NEPA and CEQA.

We suggest that for FTHL on the Imperial Valley Solar Project, connectivity would also be greatly reduced for FTHL, a species on the brink of federal protection, if the relatively wide valley floor were taken up by an industrial project. CEC and California Department of Fish and Game biologists said in the RSPP case that the risk of blocking a wide corridor and relying on a very narrow alternate corridor was too great. The best way to maintain connectivity of metapopulations would be to keep the widest possible area for a corridor.

Recent ecological concepts such as "matrix ecology" should be kept in mind when managing FTHL populations, where the permeability of less-desirable habitat around core populations in optimum habitats must be maintained so that movement can occur between good habitat patches (see Corridor Ecology, 2006, by Jodi Hilty, William Lidicker, Jr, and Adina Merenlender, Island Press: Washington).

Relocation as a mitigation measure has had a poor record of success for sensitive lizard species. Efforts to relocate the Blunt-nosed leopard lizard in San Joaquin region areas has had very high failure rates according to studies undertaken by Dr. David Germano of California State University, Bakersfield, and Steve Juarez of the California Department of Fish and Game. At a minimum a fool-proof study design needs to be incorporated into a relocation plan, which should be available for public review long before construction begins.

# A. THE DEIS FAILS TO CONSIDER EFFECTIVE MITIGATION FOR IMPACTS TO FTHL

The DEIS proposes removal surveys as mitigation to move FTHL "out of harm's way," 120 However, the DEIS fails to provide enough detail about this mitigation effort to show that it would be effective or feasible.

FTHLs are notoriously difficult to detect. Any FTHL that remain on the site after the clearance surveys will likely die during Project construction and operation. The DEIS lacks any information on translocation sites, the habitat suitability of those sites, and the monitoring that will accompany translocation. Although the comment period is about to close on the DEIS, the Applicant has just provided a draft plan to the BLM, which has not been disclosed to the public. <sup>121</sup> This draft translocation plan for FTHL is a critical part of the mitigation strategy that must be included in a revised DEIS and circulated to the public for review and comment.

A translocation plan must contain an assessment of potential release sites, with special attention dedicated to evaluating the factors that limit the distribution and abundance of FTHLs. The translocation plan must also include an appraisal of probable dispersal patterns, a detailed description of how FTHLs will be detected, and a means of documenting the effectiveness of the detection techniques. <sup>122</sup>

The DEIS indicates:

"[r]emoval surveys would be conducted by experience [sic] biological monitors only during appropriate survey conditions. The surveys shall be conducted from April 1 through September 30 when air temperatures are between 25 and 37°C (75 and 100°F). Surveys would not be conducted during inclement weather conditions (e.g., rain, high winds) that could affect the movement of FTHLs. FTHL removal from the area could continue outside of protocol survey periods since the intent is to move animals from harm's way."

The DEIS should define what constitutes an experienced biological monitor and specify how the measure will be verified. Given the difficulty of detecting FTHL and the typically low FTHL detection rates, the monitor's should have prior experience conducting FTHL clearance surveys. Further, the surveys must not be allowed outside of protocol survey periods. There is no scientific basis for allowing clearance surveys outside of the protocol survey period, and it should not be allowed. The RMS dictates all surveys should be conducted from April through September.

Additionally, the mitigation proposed by the DEIS improperly allows a net loss of FTHL habitat. To mitigate for habitat loss and potential take of FTHL, the DEIS requires the project owner to pay the BLM a monetary equivalent for 6,619.9 acres of "land suitable for these species." However, Condition of Certification BIO-10 negates the ability of the proposed compensation to fully mitigate habitat loss by allowing (a) compensation lands to be "poor quality habitat"; and (b) compensation funds to be applied to educational purposes or management actions "deemed necessary by the FTHL ICC." By authorizing these uses, the DEIS conflicts with the RMS's stated goal of preventing a net loss of FTHL habitat.

The DEIS fails to require compensation for impacts along the proposed reclaimed water pipeline route. The DEIS justifies this omission by stating "the construction activities would occur mainly in the developed/disturbed portions in and along the Evan Hewes Highway." This justification is inappropriate because approximately 45 percent (13 acres) of the pipeline route will be within native habitat. Therefore, the DEIS has failed to address the indirect impacts posed by the water pipeline.

The DEIS must be revised to address indirect impacts to FTHL caused by the proposed water pipeline. The RMS states:

A project's indirect effects on FTHLs should be considered when determining compensation. For example, ROW grants for aboveground structures such as roads, pipelines, touers, or similar facilities can have adverse impacts to FTHLs beyond the areas that are proposed to be disturbed. First, such disturbances have been shown to attract FTHL predators. For example, roads may attract round-tailed ground squirrels (Garland and Bradley 1984), and towers can provide perching areas for loggerhead shrikes and American kestrels. Second, construction vehicles can introduce invasive weeds that degrade FTHL habitat. Last, vehicles from increased authorized and unauthorized traffic on maintenance roads can cause FTHL mortality. If these and other adverse indirect effects (e.g., habitat fragmentation, decreased

FTHL density near roads) cannot be mitigated (with FTHL barriers or corridors, for e.g.), compensation for indirect effects will be required.

The DEIS fails to mitigate potentially significant impacts to FTHL from pipeline development, loss of connectivity between MAs and edge effects. The DEIS should be revised to include mitigation for these impacts and to clarify the details of the mitigation proposal for FTHL translocation and compensation.

09-43

#### FTHI.

74. As we listened to the info at the Evidentiary Hearing, with a potential for 2000 to 5000 FTHL on site, if they do construction immediately and increase travel speeds from 15 to 25 mph on the hundreds of miles of unpaved roads, the only real questions are how, when and where the FTHL will be killed. To think of translocation to already occupied habitat in winter sounds like a grand scheme for failure. And inappropriate for a species being considered for listing now.

P11-31

Response: These comments raised concerns about the concept of relocation or translocation of FTHL encountered during construction and operation of the IVS project. The common theme of these comments is that relocation/translocation of FTHL to offsite recipient areas is not a proven measure and could result in negative effects on the relocated FTHL and/or to FTHL in the offsite recipient areas. The SA/DEIS discussed relocation/translocation as a potential component of FTHL avoidance, minimization, and mitigation measures. However, the USFWS, as part of its conferencing process, has deemed relocation/translocation as inadequate and the BLM has incorporated a modified Measure BIO-9 in the project. That modified measure requires that FTHL encountered during construction and operations be moved immediately "...out of harm's way..." without any requirement to relocate FTHL to offsite recipient areas.

# D.4.7.7 Peninsular Bighorn Sheep

Comments: F2-27, F2-29, S2-3, O2-3, O2-16, O2-23, O3-6, O3-7, O3-8, O3-9, O3-10, O4-3, O6-8, O7-9, O9-5, O9-19, O9-24, O9-25, O9-26, O9-27, O9-48, P7-3, P9-1, P10-1, and P10-9.

## Endangered Species and Other Species of Concern

The site supports a diversity of mammals, birds, and reptiles, including some special status wildlife species. Grading on the plant site would result in direct impacts to some special status animal species and possibly special status plant species through the removal of vegetation that provides cover, foraging, and breeding habitat for wildlife (at pg. C.2-1). A group of Peninsular bighorn sheep were observed on the site and could use the Project site as foraging habitat and as a possible migratory corridor (at C.2-39). The DEIS speculates that the sheep may have arrived at the site after having become disoriented upon being flushed by OHV activity (at gg. C.2-24). It is our understanding that the US Fish and Wildlife Service (USFWS) will shortly make its determination whether to engage in consultation on this listed species. EPA has concerns that the DEIS did not fully consider the impacts to Peninsular bighorn sheep that may result from the proposed Project.

F2-27

Proposed designs for the Project should avoid and minimize impacts to all federally threatened and endangered species, as well as BLM species of concern and State species of concern. In addition to bighorn sheep and FTHL, the site of the proposed Project includes sensitive species such as the American badger and the Western burrowing owl, among others. Any mitigation measures that result from consultation with the USFWS to protect sensitive biological resources should be included in the FEIS and, ultimately, the ROD. The FEIS should also clearly articulate under which alternatives sensitive biological resources, including the bighorn sheep, FTHL and American badger, would be least impacted and to what extent impacts can be mitigated.

#### Recommendations:

- EPA recommends BLM include the outcome of further discussions with, and future determinations or biological analyses by, the U.S. Fish and Wildlife Service in the FEIS pertaining to the Peninsular bighorn sheep and FTHL. Additionally, the FEIS should provide analysis of impacts on, and mitigation for, covered species, including:
  - o Baseline conditions of habitats and populations of the covered species;
  - A clear description of how avoidance, mitigation, and conservation measures will protect and encourage the recovery of the covered species and their habitats in the project area;
  - Monitoring, reporting, and adaptive management efforts to ensure species and habitat conservation effectiveness.
- Incorporate complete information on the compensatory mitigation proposals (including quantification of acreages, estimates of species protected, costs to acquire compensatory lands, etc.) and analyze the environmental and economic trade-offs of acquiring the off-site lands versus reducing the size of on-site alternatives for equivalent protection.
- The FEIS should provide additional information to substantiate the finding that it is unlikely that FTHL would use the culverts to move between the Yuha Desert FTHL Management Area and the proposed Project site due to the long distance between these areas and lack of light along the length (at pg. C.2-22)
- The FEIS should consider establishing a corridor on the eastern portion of the site to facilitate surface flows and allow FTHL movement between zones consistent with the FTHL Rangewide Management Plan.
- The FEIS should also clearly articulate under which alternatives sensitive biological resources, including the Peninsular bighorn sheep and FTHL, would be least impacted and to what extent impacts can be mitigated.
- A clear commitment to implement mitigation measures to avoid and minimize adverse
  effects to the habitat of the Peninsular bighorn sheep, FTHL and other sensitive species
  should be made in the FEIS and, ultimately, the ROD.

F2-29

Biologically, the loss of over 6,000 acres of habitat for the proposed-endangered Flat-tailed Horned Lizard should be considered significant and will require costly mitigation according to formulas derived as part of the Flat-tailed Horned Lizard Conservation Strategy. The loss of over 6,000 acres of habitat for burrowing owls (a California Species of Special Concern), likewise will need to be mitigated. The presence of individuals of the State- and federally-listed endangered Peninsular Range population of the Desert Bighorn Sheep will also require mitigation as a result of this project. Some 312 acres of desert washes and waterways would be impacted by the proposed project and require mitigation under the U.S. Army Corps of Engineers and California Department of Fish and Game guidelines. Numerous other sensitive plant and animal species will also need to be mitigated.

S2-3

Nonetheless, even the inadequate information provided in the DEIS shows that the proposed plan amendment and right-of-way application should be denied because the proposed project will result in significant impacts to a breeding population of flat-tailed homed lizards, which are proposed to be listed under the Endangered Species Act ("ESA"). In addition to direct impacts to the flat-tailed homed lizard, the proposed project is in an area that links the northern and southern populations and management areas for this imperiled species – areas which were set aside for the conservation and recovery of the species. Although the DEIS acknowledges that this site includes documented foraging area for the federally and state endangered Peninsular bighorn sheep (DEIS at C.2-39), the DEIS improperly ignored potential impacts to the bighorn from the loss of this foraging area. Alternative siting, which the BLM failed to adequately address in the DEIS, could significantly reduce the impacts to both of these species, their occupied habitat, and other special status species including potentially rare plants. The Center urges the BLM to revise the DEIS to adequately address these and other issues detailed below and re-circulate the DEIS or a supplemental DEIS for public comment.

02-3

In the sections that follow, the Center provides detailed comments on the ways in which the DEIS fails to adequately identify and analyze many of the impacts that could result from the proposed project, including but not limited to: impacts to biological resources, growth inducing impacts alternatives and cumulative impacts. In addition, if undertaken as proposed, this industrial project is inconsistent with local planning and zoning laws, the Endangered Species Act ("ESA"), the Federal Land Policy Management Act ("FLPMA"), the California Desert Conservation Act ("CDCA"), and other laws, ordinances, regulations and standards.

The DEIS appears to rely heavily on conclusory statements and many critical issues have not been fully identified and analyzed in the DEIS. Moreover not all of the references are readily available and in several instances the DEIS relies on personal communications without any documentation for critical assumptions such as the success of flat-tailed horned lizard translocation, inporting other data and scientific evidence. For example, the DEIS states:

"The FTHL would be moved out of harm's way in coordination with the FTHL ICC. The FTHL ICC may choose to relocate the salvaged FTHL from the SES Solar Two project to several suitable sites within protect FTHL habitat or possibly conduct field research on FTHL. Decisions regarding the salvaged FTHL should be determined by the BLM in cooperation with the FTHL ICC prior to publication of the Staff Assessment/Final Environmental Impact Statement (Steward 2010)"

02-16

DEIS C.2-21. The reference given is "Steward, D., 2010 – Telephone conversation between Daniel Steward, Acting Field Manager for the Bureau of Land Management, El Centro, California office, and Joy Nishida, California Energy Commission. January 6, 2010." No other references are discussed or provided for this critical issue. No data are provided that relocation of flat-tailed horned lizard has ever proven to be a successful minimization or mitigation measure. It does not appear that the BLM had sufficient time or made sufficient effort to obtain current information or to accurately address the issue of mortality to the flat-tailed horned lizard from relocation as well as many other issues.

Similarly, the DEIS notes that "The USFWS, CDFG, and BLM biologists are in agreement that the siting [sic] of bighorn sheep on the site in spring 2009 was an unusual

occurrence and is unlikely to occur again" (DEIS at C.2-40) yet no citation or reference is included as a basis for this assumption, no independent bighorn biologist was contacted for input, nor is there any other information provided as to the basis of these conclusions are provided. The DEIS does not describe whether any surveys were conducted for bighorn or sign, the methodology and results of such surveys if any, and if no surveys were conducted the reason for that omission. Further, additional sightings of bighorn have been reported on the site of the proposed project, some as recently as this week.

02-16

These examples show a lack of attention to detail in preparing the DEIS and in consideration of the proposed project as well. When BLM revises the DEIS, as it must, the Center hopes and expects that BLM will remedy the errors noted as well as provide a more considered analysis of the impacts of the proposed project.

#### 2. Peninsular Bighorn Sheep

The DEIS simply fails to assess the impacts of the proposed project on the federally and state endangered peninsular bighorn sheep population. Without basic information about the use of the proposed project site and adjacent areas by bighorn it is impossible to assess the extent of the impacts to the bighorn population in this area from the proposed project.

02-23

However, the proposed project will clearly cause the loss of foraging habitat on the project site in washes where at least one Peninsular bighorn sheep ewe group was documented to

occur (DEIS at C.2-39) and additional sitings this year show that it was not an anomaly. Even if such habitat may only be used during certain seasons or years it can be critical to survival of bighorn. Without site-specific data on the details of habitat use patterns of the bighorn in the area, the DEIS cannot properly assess the importance of the wash habitat to the bighorn population or the impact of its loss on the population.

The proposed project may affect foraging areas and movement corridors for bighorn, as well as fragmenting currently intact habitat. The DEIS simply dismisses the documented occurrence of bighorn on the site and fails to analyze the impacts to this endangered species. Moreover no mitigation is proposed for the loss of forage and movement areas and fragmentation of habitat by the construction of the proposed solar project on over 6,000 acres.

For other rare species addressed in the document the mitigation involves the purchase and future protection of at minimum an equal amount of acreage or more that is being impacted. No such suggestion is listed for Peninsular bighorn sheep, although even the purchase of lands elsewhere will do nothing to mitigate for the potential movement corridor onsite.

Additional field study needs to be conducted by a knowledgeable researcher on the proposed solar site, to understand how the bighorn use this area. Absence of previous documentation of Peninsular bighom sheep occurrence on site (or in the general area) does not infer that bighorn were not using the site previously. Indeed, the Center was informed several years ago that the EI Centro Office may have lost or misplaced many documents concerning the Peninsular bighorn sheep and earlier sightings in the area. Absent any real information in the field, the dismissal of impacts to this California fully-protected species and federally endangered species is a violation of NEPA as well as the ESA.

Peninsular Bighorn Sheep: The potential loss of seasonal foraging habitat and potential movement corridors for Peninsular Bighorn Sheep is a concern. Very little information was presented in the SA/DEIS about bighorn populations and movements on a regional basis, which ranges are currently occupied and where potential movement corridors may be located. The documented sighting of several Peninsular Bighorn in a wash within the central portion of the project area may be a significant event. No other information is provided which would indicate that these animals were studied to document their use of the habitat for foraging, movements, duration within the project area, and other behaviors. The permitting agencies and the California Department of Fish and Game have addressed the bighorn sheep occurrence and impact issue and concluded that presence of bighorn sheep within the project area in the spring of 2009 was "...an unusual occurrence and is unlikely to occur again." (DEIS at C2-40).

Recommendation: Analysis of impacts to these two species should be rigorously performed, and the mitigation identified should be to avoid, minimize or compensate for the effects of the proposed project, in priority order. Habitat enhancement opportunities for both species should be identified as part of the impact mitigation strategy involving compensation for habitat loss. Habitat enhancements needed to achieve the no net-loss standard should be identified and included as proposed mitigation measures in addition to compensation for lost habitat. Due to the size of the proposed project, the adequacy of the 1:1 habitat loss compensation ratio should be analyzed and adjusted if deemed necessary to achieve the no net loss outcome. BLM should determine whether or not the proposed project would be consistent with management policy contained in Manuals 6500 and 6540.

02-23

03-6

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Recommendation: Additional studies of the ephemeral washes on the proposed project site for use and occupancy by Peninsular Bighorn should be conducted if their accessibility to Bighorn would be precluded due to the project. Any additional information available on the activities and behavior of the bighorn observed on the proposed project site in the spring of 2009 should be provided, such as feeding, resting, direction of travel, and duration within the proposed project area.

O3-8

Recommendation: The larger ephemeral washes coursing through the proposed project area plus a corresponding buffer zone may be warranted as a means to allow for continued use of the area by Bighorn. The specific washes and the necessary width of a buffer to allow for Bighorn feeding and movement should be determined by subject matter experts from the California Department of Fish and Game and U.S. Fish and Wilklife Service.

03-9

Recommendation: Compensation for lost habitat should include replacement habitat and enhancement of sufficient habitat to fully offset the net loss. Enhancement may require establishment of protected reserves within habitats occupied by the species that are being adversely impacted by multiple use activities.

Our principal concerns with the impacts of the Solar Two project at this time relate to three biological resources: Peninsular bighorn sheep which are federally endangered; the flat-tailed homed lizard, currently proposed for federal listing as threatened; and water resources and the habitat values associated with these resources in a desert environment, see "U.S. Army Corps of Engineers Public Notice/Application No.: SPL-2008-01244-MLM, pg. 11". In addition, we have identified several other issues requiring more robust analysis, namely the use of hydrogen and the potential for project phasine.

Biological Resources: The DEIS treatment of the observance of federally endangered bighom sheep on the project site is particularly deficient. Merely attributing the occurrence of a ewe group of bighom sheep to a "transient occurrence" without further investigation and analysis is inadequate, id. ES-21. The DEIS indicates that the project site provides marginal foraging habitat, id. C.2-18. Under varying precipitation conditions and levels of vegetation growth, marginal foraging habitat may supply an important part of the sheep's diet and could continue to attract foraging activity on an ongoing basis.

The document indicates that Department of Fish and Game biologists, and biologist for the project applicant "have speculated that the bighorn sheep sited at the project location could have been flushed by OHV activity and possibly became disoniented and wandered onto the project site," id. C.2-24. While OHV activity in the area can certainly affect movement patterns of sheep, this is not the only possible explanation for the presence of the ewe group on the site, and the DEIS must not assume that its. The final EIS must analyze avoidance, minimization and mitigation measures based on the assumption that bighorn sheep will continue to use the site on an ongoing basis for forage as their previous visitation suggests rather than simply dismiss their presence as an anomaly. For example, we would suggest consideration of concrete measures to mitigate for loss of habitat, such as purchase of replacement lands, as well as ongoing monitoring on the site to ensure that any subsequent usage by the sheep is well-documented and any necessary modifications to operations are made.

A second species of concern found on the project site is the flat-tailed horned lizard. As noted above, this species is currently being considered for listing as federally threatened, id. ES-12. Estimates of population in the project area vary w.dely from 2,000 to 5000, id. C.2-22. Greater specificity regarding this population is needed to fully understand possible impacts to this species especially in the context of the pending listing.

The SA/DEIS fails to disclose potentially significant impacts to the Peninsular bighorn sheep ("PBHS") and the FTHL. Both PBHS and FTHL have been "observed on [the] project site" SA/DEIS, pp. C.2-16, C-218. PBHS is listed under the federal Endangered Species Act (61 FR 13134, 13136) and a proposed listing of FTHL is currently under review. SA/DEIS, p. C.2-40 (detailing process that led to a federal court order requiring USFWS to consider listing FTHL). The SA/DEIS also fails to disclose significant impacts to special-status plant species. The deficiencies are exemplified by the SA/DEIS' statement that the significance of biological impacts is "to be provided," in violation of both CEQA and NFPA FS-15.

Although PBHS was observed on the Project site, the SA/DEIS claims that PBHS' use of the project site "is transitory at best" and that therefore impacts to PBHS would be less than significant. SA/DEIS, p. C.2-40. This conclusion is based solely upon BLM's and the applicant s'speculat[ion] that the [PBHS] sited [sic] at the Project location could have been flushed by OHY activity and possibly became disoriented and wandered not the project site." SA/DEIS, p. C.2-42. This is "pure speculation" that "is contradicted by the evidence regarding known [PBHS] behavior." Testimony of Dr. Vernon Bleich on behalf of California Unions for Reliable Energy ("CIRE"). Exhibit 400 to opening testimony for CURE, p. 4. It is quite likely that PBHS appear in the Project vicinity on a regular basis. In fact, just three days ago (May 24, 2010), a group of five adult PBHS west were seen about 4-5 miles west of the Project site. Comment letter by Denis Trafecanty, sent May 27, 2010, p. 1.

As Dr. Bleich testified, on behalf of California Unions for Reliable Energy ("CURE"), "the SA fails to adequately analyze the potential reason(s) that PBHS were using [the Project site] and, as a result," its conclusions that PBHS 'appearance was a mere coincidence are "indefensible." Id. at 1, 5. The SA/DEIS also fails to identify or mitigate impacts to forage habitat, and fails to identify and mitigate the loss of 6,063 acres of bighorn sheep habitat within the CTCRA. See generally id. 5-9. The SA/DEIS' "fail[ure] to adequately identify the[se] significant impacts" is unlawful. Id. at 1.

Furthermore, consultation with the Fish and Wildlife Service regarding the Project's impacts on PBHS is required. The Endangered Species Act specifies that "[t]he agency taking the action must assess the project's effects on endangered or threatened species and consult with the FWS to assure the project's compliance with the ESA." Sterra Club v. Marsh, 816 F.2d 1376 (9th Cir. 1987). "The consultation process is triggered when a federal agency. . undertakes any activity which could impact an endangered species or threaten its critical habitat." Florida Key Deer v. Stickney, 864 F.Supp. 1222, 1228 (S.D. Fia. 1994) (ctining 16 U.S.C. § 1536(a)(2)) (emphasis in original). Here, as discussed above, the Project "could" affect the PBHS. Thus, consultation with FWS is mandated.

Scott Cashen, an expert biologist, testified as to the Project's undisclosed impacts on special status plant species and the FTHL. Exhibit 429 to opening testimony for CURE. In his professional opinion, the SA/DEIS contains "inadequate information on the presence of special-status plant species within the Project area" and "as a result". .. the SA/DEIS cannot conclude [that] proposed mitigation

O6-8

would reduce Project impacts" on these species "to less than significant levels." Id. at 2; see also mitigation measure BiO-19, SA/DEIS, pp. C.2-97 through 100. The size of the buffer zone for special-status plant species is unknown and likely insufficient. Id. at 2-3. Mr. Cashen also testified that the proposed mitigation measures to mitigate impact to non-listed species are unenforceable and that impacts to these species would be significant as well. Id. at 3-4. Unless all required plant surveys are completed before the mitigation measures are adopted, it is impossible to tell whether the mitigation measures will be effective. Id. at 5. Moreover, fall surveys for special-status plant species have not yet been prepared. Id. at 6. Because of these informational inadequacies, the SA/DEIS is legally deficient.

With regard to the FTHL, the SA/DEIS contains no conclusion regarding the Project's impacts. 
"[S]taff is in the process of evaluating if the use of compensation funds is sufficient for CEQA mitigation." SA/DEIS, p. C.2-61. As discussed above, the DEIS itself is required to include this information. There is a "possibility that thousands of FTHL will die as a result of the Project"; a population of this size is "roughly half the size of the population within the entire West Mesa MA." 
Exhibit 429 to opening testimony for CURE, pp. 8-9. Additionally, "the loss of 6.063 acres of habitat" 
that would accompany the Project "represents a tremendous impact" on the FTHL, which "is proposed for listing due to habitat loss." These impacts must be mitigated before the Project is approved, not after.

The Project also "would cause considerable fragmentation to the remaining FTHL habitat." Id. at 9. Nonetheless, "I(the SA/DEIS proposed no mitigation for impacts to FTHL movement between MAs." Id. at 11. The SA/DEIS conclusion that such mitigation is infeasible is unsupported by the record. Id. There is no basis to assume that a corridor underneath 1-8 would be impractical. Id. Additionally, the SA/DEIS contemplates that the FTHL "would be moved out of harm's way." SA/DEIS at C.2-55, but this strategy "only partially addresses the [FTHL's] survivorship" and, accordingly, only partially mitigates this impact. Exhibit 429 to opening testimony for CURE, p. 12. CEQA requires these potentially significant impacts to be mitigated and the SA/DEIS' failure to do so is unlawful.

Finally, the compensatory mitigation measure, BIO-10, also fails to fully mitigate habitat loss. This measure would allow current habitat to be replaced by "poor quality habitat." SA/DEIS, p. C.2-85. As such, the SA/DEIS fails to "prevent[] a net loss of FTHL habitat," as claimed. Exhibit 429 to opening testimony for CURE, p. 14.

Attention has been raised as to the importance of flats and upper alluvial fans adjacent to mountain ranges for spring foraging habitat, especially used by ewe herds. We have seen several times Desert bighorn sheep herds feeding on spring vegetation on fans away from typical steep hill habitat. Thus the sighting of bighorn sheep on the project site may not be an aberration, but a regular part of the behavioral ecology of Peninsular bighorn sheep in the area. This habitat should be preserved so that this important foraging habitat can be preserved.

07-9

O6-8

The Project will also fence more than 6,000 acres that may provide critical movement corridors and forage resources for endangered peninsular bifurous steep in the Carrizo Mountains/Terra Blanca Mountains/Coyote Mountains Recovery Area. This impact was not even discussed in the DEIS.

O9-5

# C. RECOVERY AREA FOR BIGHORN SHEEP

The Project site is located within a recovery area for federally endangered peninsular bighorn sheep ('PBHS'). PBHS were photographed on the Project site in March of 2009. However, the DEIS fails to describe how the Project site may be important to the recovery of PBHS.

O9-19

According to Dr. Vern Bleich, federally endangered peninsular bighorn sheep occupy a number of areas surrounding the Project site including (a) the area known as the Coyote Mountains immediately west of the Project site and north of Interstate Highway 8, which supports a population of between 45 and 60 individuals; (b) the Fish Creek Mountains immediately north of the Project site that are occupied by PBHS on at least a seasonal basis; (c) the

Sierra Juarez located immediately south of the Jacumba Mountains near the project site; (d) the Sierra Cucapa, located immediately southeast of the Project site; and (e) a portion of the Jacumba Mountains immediately south of Interstate 8.51 These mountainous areas have been designated as the Carrizo Mountains/Tierra Blanca Mountains/Coyote Mountains Recovery Area (henceforth referred to as the CTCRA) in the Recovery Plan for PBHS in the Peninsular Ranges. The Project site may be part of an important movement corridor in this Recovery Area. This should be described as part of the affected environment in the DEIS.

09-19

# A. THE DEIS FAILED TO ANALYZE SIGNIFICANT IMPACTS TO ENDANGERED PENINSULAR BIGHORN SHEEP

The DEIS concludes that there is no significant adverse impact to PBHS. The DEIS erroneously quotes the USFWS as having concluded that peninsular bighorn sheep are unlikely to reoccur on the Project site and that all the resource agencies agree that the project is not likely to affect PBHS. In an email communication on May 11, 2010, USFWS biologist Felicia Sirchia confirmed that USFWS has not yet made a determination as to whether the Project is likely to adversely affect PBHS and that neither she, nor Guy

Wagner, the USFWS bighorn specialist in the Project area, ever told the Applicant that PBHS are unlikely to reoccur on the Project site. 59

Peninsular bighorn sheep ("PBHS") were photographed on the proposed Project site in March 2009. The DEIS fails to adequately analyze the potential reasons(s) that PBHS were witnessed on the property in March, 2009, and as a result the DEIS fails to adequately identify the significant impacts of the project on the local population of PBHS occupying the southeastern portion of the peninsular ranges. In particular, the DEIS failed to address four specific impacts: (a) impacts to sheep movement corridors among areas occupied (or habitat that may be suitable, but otherwise unoccupied) by PBHS; (b) impacts to PBHS through the loss of valuable forage in low-lying areas; (c) the significance of the permanent loss of 6,063 acres of habitat used at least occasionally by PBHS; and (d) cumulative impacts and their overall potential to influence the recovery or persistence of PBHS.

The DEIS failed to analyze impacts to PBHS movement corridors

Without any support, the DEIS concludes that the site "... does not provide any corridor to other habitat that would support Peninsular highorn sheep." As a result, the DEIS does not analyze the likely potential that PBHS observed on the project site were moving from permanently occupied areas to other permanently or seasonally occupied areas. Instead, the DEIS dismisses the presence of PBHS on the project site as "... a transient occurrence." 10

The project will be completely surrounded by a perimeter fence, effectively eliminating the potential for PBHS movement through the project site. This will translate to nearly 7 miles of fence immediately adjacent to Interstate Highway 8 along just one side of the project. \*\* The DEIS fails to acknowledge that the fence will eliminate present and future movement of PBHS through the project site and between areas of known habitat. \*\* The project's elimination of this movement corridor may impact the recovery of PBHS in the CTCRA. Therefore, development of the project may result in direct impacts to PBHS and habitat linkage(s) in this recovery area. \*\*

The conclusion in the DEIS that "[t]he site is several miles from designated critical habitat and does not provide any corridor to other habitat that would support Peninsular bighorn sheep" is not supported by the literature on this topic. <sup>65</sup> It is well known that bighorn sheep moving between occupied areas, or even from occupied areas into unoccupied areas, are capable of moving long distances, and that such movements may occur more frequently than previously recognized. <sup>66,67</sup>

Moreover, the statement that "[m]ovement by bighorn sheep of this distance [6 miles] from known habitat to the west of the project site has not been previously documented" implies that such movements are not likely to occur. In fact, movements by bighorn sheep of distances far greater than 6 miles from stereotypical bighorn sheep habitat are being increasingly recognized, 69.70 and the value of intermountain areas like the project site to metapopulation function and, in turn, population persistence, has been repeatedly emphasized in the literature. 71.72.73.71 Further, the PBHS photographed on the project site were female, and female bighorn sheep are inherently conservative in their behavior and are slow to colonize vacant areas. 30 so the presence of female PBHS on the project site suggests those sheep were moving from one area to another within the CTCRA.

The statement that, "...sheep entering the area are far from escape habitat and would be in a highly stressed state which could put them at great risk as the site is already surrounded by busy highways and the railroad 76 is not consistent with known sheep behavior. Bighorn sheep occupy areas adjacent to busy highways elsewhere, as well as other areas that receive high human use such as state parks, golf courses, areas on and adjacent to mines. and urbanized areas. PBHS are also known to cross Interstate Highway 8 and other heavily traveled routes. Telemetry data indicate that Interstate Highway 8 does not preclude movement of bighorn sheep™ and the observation of bighorn sheep "[a]pproximately six miles east of the closest Peninsular bighorn sheep critical habitat"78 is consistent with an expanding population of bighorn sheep in the CTCRA.79 The photographs of the PBHS on the site demonstrate the animals were alerted to the photographer's presence and then moved away, but the DEIS provides no evidence to support the conclusion that the sheep were in a "highly stressed state which could put them at great risk."

Additionally, the DEIS's statement that, "[b]iologists for the BLM and consultants for the applicant have speculated that the bighorn sheep sited [sic] at the project location could have been flushed by OHV activity and possibly became disoriented and wandered onto the project site" so is based on pure speculation and is contradicted by the evidence regarding known bighorn sheep behavior. According to Dr. Bleich, when bighorn sheep are harassed, the sheep retreat to steep and rugged areas that provide the greatest opportunity to detect and evade threats to their well being, not an area "less safe" than the steep, rocky terrain often described as "escape terrain" by bighorn sheep biologists.

The recent observation of PBHS on the project site, as noted in the DEIS, is encouraging in the context of increased utilization of such areas by bighorn sheep.<sup>81</sup> In fact, the "transient" use of the project site by PBHS, which was dismissed in the DEIS as insignificant, can be essential to the

recovery of the sheep in the region. \*E "Transient" movements by bighorn sheep among populations support metapopulation function, population viability and, ultimately, recovery of that endangered distinct population segment ("DPS"). \*S Such movements facilitate gene flow and opportunities for colonization of vacant patches of habitat. \*I The potentially significant impacts from eliminating the opportunity for bighorn sheep to use the site on a transient basis must be addressed in the DEIS.

Additionally, because the project is so close to an unfenced part of the United States/Mexico border, it may impact movement corridors between Mexico and the United States. Connectivity among populations of large mammals along the international border is important to the persistence of bigborn sheep and other large mammals in both the United States and Mexico, so and habitat connectivity on both sides of the border is important to the conservation or restoration of bigborn sheep. so Resource agencies must promote habitat expansion and protect linkage corridors within the CTCRA because new habitat and movement corridors are critical to the recovery of the DPS so

Failure of the DEIS to address the potential for the project site to function as a movement corridor, compounded by the DEIS's unsupported conclusion that use of the site by bighorn sheep was "transitory at best" is baseless, and a cause for concern. Minimally, the DEIS must acknowledge that the site may be important in providing opportunities for PBHS to travel between areas of known occupied bighorn sheep habitat. In the absence of data to the contrary, the unsupported conclusion in the DEIS that any importance of the project area being used for movement between such areas is "highly unlikely" sis indefensible.

 The DEIS failed to analyze the potential for the Project site to provide key forage opportunity to peninsular bighorn sheep

The PBHS photographed on the site in March 2009 were most likely there due to the presence of high quality forage.90 The DEIS failed to analyze the significance of the potential nutritional benefits incurred by PBHS on the project site. The DEIS concludes that the project site provides marginal foraging habitat, but then fails to provide any basis whatsoever for its conclusion. This is inexplicable because the project site is in a low-lying area with a number of significant desert washes, a habitat known to provide rich forage for highorn sheep, particularly during springtime. 91 The DEIS provided no citation to evidence that the forage consumed by the animals on the site was of poor quality, low in availability, or otherwise unimportant to bighorn sheep. Low-lying areas, and particularly washes, are used by bighorn sheep for foraging. Such use may occur only for short periods of time, but can play critically important roles in the life history of bighorn sheep, particularly during years when forage production is poor.92 Indeed, patterns and amounts of precipitation, and resultant productivity of vegetation, affect the distribution of bighorn sheep and, ultimately, the probability of persistence of populations of that species.93

Of the vegetation found on the project site, many species are utilized as forage by bighorn sheep, including:

Aristida spp. (three-awn grass)
Bouteloua spp. (grama grass)
Ephedra nevadensis (Mormon tea)
Prosopis glandulosa (mesquite)
Krameria grayi (white rattany)
Cercidium floridum (palo verde)
Sphaeralcea ambigua (desert mallow)
Encelia farinosa (brittlebush)
Vigueria spp. (vigueria)
Opuntia acanthocarpa (buckhorn cholla)
Larrea tridenta (creosote bush)
Astragalus spp. (milkvetch)
Ditaxis spp. (silverbush)
Hymenoclea salsola (cheeseweed)
Bebbia juncea (sweetbush)

O9-25

### Phoradendron californicum (desert mistletoe).94

Indeed, bighorn sheep inhabiting the peninsular ranges are known to forage on more than 50 species of vegetation. Thus, the analysis of the project's impacts to bighorn sheep habitat, particularly wash habitat, is inadequate.

O9-25

 The DEIS failed to consider the loss of more than 6,000 acres of habitat for PBHS

The DEIS simply dismisses the loss of 6,063 acres of highorn sheep habitat within the CTCRA. All of the area that will be enclosed by the perimeter fence will preclude access to the project site by PBHS.<sup>56</sup> Thus, an area of more than 6,000 acres that currently is available to bighorn sheep, and appears to support substantial areas of desert wash habitat, will suddenly become unavailable for use by those animals either as foraging habitat or for movement between areas of more stereotypical bighorn sheep habitat. The significant impact of the loss of habitat must be analyzed in the context of what is known about bighorn sheep life histories, nutritional needs, and population structure. At a minimum, the DEIS needs to address the impact of this loss of habitat, and propose appropriate mitigation for that loss

O9-26

d. The DEIS failed to adequately analyze cumulative impacts of this Project and others on PBHS movement

A number of alternative energy projects are being, or have been, proposed in the vicinity of the project site. Due to the DEIS' dismissal of the potential importance of the project site to PBHS, the cumulative impacts of such projects (e.g., Cottillo Express) in combination with the Project have not been fully assessed. Thus, a discussion of the cumulative impacts of Imperial Valley, in combination with other developments anticipated to occur in the vicinity of the southeastern peninsular ranges, is necessary to more fully assess the overall impact(s) on PBHS.

# F. THE DEIS FAILS TO MITIGATE IMPACTS TO WILDLIFE MOVEMENT

The project as proposed in the DIES will result in a potentially significant unanalyzed impact to bighorn sheep and to other species that may move through the area regularly or occasionally. 124 Movement is critical to the long term viability of many species. The DEIS identifies the ephemeral washes in the Project site as wildlife movement corridors. However, it provides no discussion of the significance of eliminating these corridors, or the ability to maintain functional wildlife movement corridors after the fence is erected around the 6.063-acre Project site.

09-48

The DEIS fails to provide any mitigation for impacts that will result from erecting a fence around the Project site even though this is likely to have a significant impact on the metapopulation dynamics essential to the recovery of peninsular bighorn sheep. <sup>150</sup> In addition to this species, the Project would undoubtedly serve as a significant barrier to numerous other terrestrial wildlife species. <sup>156</sup> The DEIS lacks any analyses of the impacts of the Project on wildlife movement or mitigation to reduce these impacts to a level considered less than significant.

First, impacts to biological recourses would be severe. This area is important habitat for the flat-tail homed lizard (FFLL), as BLM sensitive species. The FFLL will probably be listed as a threatment species on, and this product would outsirely push the FFLL over the brink into that status. BLM should not allow further destruction of this animal's habitat. Other sensitive species have been observed on this site as well, including light proving owls, BTL forces, and craftnessed periodic species of the site as well, including light proving owls, BTL forces, and craftnessed periodic bighorn sheep. The dismissal of the presence of pointsufar bighorn sheep as "a transient occurrence" does not occur.

P7-3

I'm writing to voice my opposition to the implementation of the Imperial Valley Solar project.

I feel that it will have grave ecological consequences for the area, and that SES has not been forthcoming about those consequences. They claim that habitat "between the solar panies" will be fire, but that is simply not true-fragmented habitat is lower quality habitat, and this habitat will not prefix in. Alt have the prefix in the pre

P9-1

1. First and foremost, while my wife and I were in transit to the SDGE Office meeting in EI Centro observed a herd of Big Horn sheep grazing approximately 4-5 miles west of the western end of the proposed IV project site on May 24<sup>th</sup> at 5:10PM. My wife had a clearer picture of the siting as I was driving. After the meeting, we got a better picture of the location although it was too dark to get a precise location. We plan to visit this location again to obtain more details. I strongly believe that we should not treat the original siting on the proposed IV Project site as an anomaly and treat it as a presumed re direction of the Big Horns due to someone's thought that four wheel drive vehicles caused the incident. I plan to visit the IV site on many occasions to determine if there will be additional sitings of Big Horn Sheep. I will need about 6 months to complete this effort due to the increased temperatures currently.

P10-1

# Report of Sighting of Bighorn Sheep

When: May 24, 2010, 5:10 pm

Where: Approximately 4 ½ to 5 miles west southwest of Phase I of the Imperial Valley Solar Site, about 50 feet west northwest of Interstate 8 eastbound

Description: I was a passenger in a vehicle traveling about 60-65mph eastbound on I-8 when I observed what appeared to be five adult ewes (no circular horns as on rams) about 50 feet west northwest of I-8 eastbound, that were facing southwest towards the freeway grazing on some natural vegetation. The bighorn sheep were sighted at the northeast end of the stretch of I-8 where east and westbound are separated, just west of Octillo.

P10-9

Response: These comments raised concerns about the Peninsular bighorn sheep (PBS), including concerns regarding the adequacy of the analysis of the IVS project effects on PBS, loss of migratory and forage habitat for PBS, claims of PBS observations on the IVS project site by members of the general public, the adequacy of the analysis of the use of drainages by PBS, PBS habitat fragmentation, and the adequacy of measures to offset project impacts to PBS. BLM maintains that the March 2009 sighting of PBS on the project site was unusual and transitory, and remains the only documented observation of PBS that far east of its Federally designated critical habitat. There are vast expanses of desert floor Sonoran desert crosote bush habitat adjacent to the existing PBS MAs. The IVS project site is over 6 miles (mi) from Federally designated PBS critical habitat and would not be considered a migratory corridor because the IVS project site is not surrounded by typical PBS habitat. There are PBS MAs north and south of the Coyote Mountains Area, but the IVS project site is east of there and it is highly unlikely that PBS would circumvent much more efficient routes to other areas occupied by or

suitable for occupation by PBS. The IVS project site is in proximity to developed agricultural lands to the east and is bounded to the north by Evan Hewes Highway and the railroad tracks, and to the south by I-8. The IVS project site could provide some temporary forage habitat to displaced PBS, but does not function as primary forage habitat or a migration corridor for PBS. With incorporation of the project avoidance, minimization, and mitigation measures, the IVS project may affect, but will not adversely affect, PBS.

#### D.4.7.8 Soils

Comments: O2-27, O7-4, O9-14, O9-15, O9-16, O9-18, O9-39, O10-4, and O10-5.

#### 6. Cryptobiotic soil crusts

desert ecosystem components as a result of this project.

The proposed project is located in the Imperial County Air Pollution Control District area, and is already in non-attainment for PM-10 particulate matter. The construction of the proposed project further increase emissions of these types of particles because of the disruption and elimination of potentially thousands of acres of cryptobiotic soil crusts. Cryptobiotic soil crusts are an essential ecological component in arid lands. They are the "glue" that holds surface soil particles together precluding erosion, provide "safe sites" for seed germination, trap and slowly release soil moisture, and provide CO<sub>2</sub> uptake through photosynthesis.

The FEIS does not describe the on-site cryptobiotic soil crusts. The proposed project will disturb an unidentified portion of these soil crusts and cause them to lose their capacity to stabilize soils and trap soil moisture. The DEIS fails to provide a map of the soil crusts over the project site, and to present any avoidance or minimization measures. It is unclear how many acres of cryptobiotic soils will be affected by the project. The DEIS must identify the extent of the cryptobiotic soils on site and analyze the potential impacts to these diminutive, but essential

Biological soil crusts need to be analyzed, as we have seen them on the project site. When disturbed they may take decades to recover, and provide important soil-binding and carbon-storing functions.

# B. SOIL AND WATER CONDITIONS IN THE REGIONAL WATERSHED

The Project is within the Salton Sea Watershed and soil and water conditions on the Project site directly affect this watershed. Soil and water impacts were identified and analyzed by independent expert hydrologists Dr. Chris Bowles and Chris Campbell. Their testimony is attached to this comment and their opinions are incorporated in the soil and water sections of this comment letter.

As California's largest lake, the Salton Sea supports a multitude of recreational uses and a National Wildlife Refuge and is a critical stop on the Pacific Flyway for migrating birds, including several state- and federal-listed endangered and threatened species. Since the Sea has no outlets, salts concentrate in it and thus the sea is dependent on the continued inflow of freshwater to support it. Currently, the Sea is 25 percent saltier than the ocean, with salimity increasing at approximately 1 percent per year.

The desert washes impacted by the Project provide critical ecological functions such as sediment transport and deposition, energy dissipation and groundwater recharge for the Salton Sea Transboundary Watershed. As explained by the EPA, these important services will be lost or degraded by the Project development.<sup>38</sup> The DEIR failed to adequately describe the soil and water conditions on the Project in order to provide a baseline to evaluate the Project's impacts.

#### a. Cryptobiotic Crusts

Notably, the DEIS failed to include any analysis of surface soils, including identification of the presence of cryptobiotic crusts on the Project site. It is highly likely that cryptobiotic crust is widespread across the site. So Cryptobiotic crust is a highly specialized community of cyanobacteria, mosses, and lichen and are prevalent in the project area. The living organisms present in the desert soils create a surface crust of soil particles bound together by organic material. The thickness of these crusts can reach up to 10 cm. The crusts are important members of the desert ecosystem and

contribute to the well-being of other plants by stabilizing sand and dirt, promoting moisture retention, and fixing atmospheric nitrogen. <sup>41</sup> Because of their thin, fiberous nature, cryptobiotic soils are extremely fragile systems. Some species in the soil can recover within a few years of disturbance, but slow growing species may require more than a century to recover. <sup>42</sup>

Disruption of the crust will result in decreased organism diversity, soil intrients, stability, and organic matter. <sup>13</sup> The crusts significantly aid infiltration of precipitation, and anthropogenic disturbance can dramatically increase surface runoff and increase the rate of soil loss by an order of magnitude. <sup>11</sup> Wind erosion is substantially more prevalent with disruption the crust. Crusts that may remain intact downstream of the project site will inevitably be buried through windblown and water transported erosion. <sup>45</sup>

09-14

The BLM must establish the extent of cryptobiotic crust in the affected environment in order to analyze the effect that elimination of this crust will have on the hydrology of the Project site. This information and analysis must also be disclosed to the public, and the Project's impacts on the regional watershed must be analyzed as required by NEPA.

#### b. Desert Pavement

The DEIS failed to analyze or account for the physical properties of the desert pavement on the Project site. The extent and type of desert pavement and distinct geomorphic surfaces across the site should be mapped since they control infiltration, runoff, and transmission losses under existing conditions. \*\*Gesilience and self healing of the desert pavement to minor anthropogenic disturbance is possible over centuries if the mature Av horizon (clay-rich eolian epipedon) remains intact. \*\*I However, in the context of project construction and subsequent maintenance activities (i.e., servicing the Power Conversion Unit, monthly mirror washing, etc.), this is unlikely to occur. This is described in more detail in an attached comment letter submitted by Dr. Christopher Bowles and Christopher Campbell. \*\*

09-15

The BLM must evaluate the extent and type of desert pavement on the Project site in order to analyze the effects of destruction of that pavement on the hydrology of the site from Project activities.

#### c. Soluable Salts

Deep grading, a potential aspect of the proposed project, will likely destroy the Av horizon and directly influence infiltration, runoff, transmission losses, and movement of soluble salts.<sup>40</sup> The DEIS provides no consideration of the content of the soil on the Project site and the extent of soluble salts that could be released into the environment from development activities. Soluble salts may travel laterally in the short term with soil erosion and surface runoff and leach down into the groundwater in the long term. This could also have an indirect impact on neighboring established vegetation since vegetation is influenced by proximity to leached soluble salts.<sup>50</sup>

09-16

#### e. Conclusion

The description of the affected environment in the DEIS must be substantially revised to describe the cryptobiotic crusts, desert payement and soluble salts that are on the Project site because these resources play a significant role and must be considered in the analysis of the Project's impacts on the hydrology of the region.

O9-18

#### e Soil Binders

The DEIS indicates that the Project will employ widespread use of soil binders to avoid erosion and reduce dust. The potential impacts of the soil binders on the natural characteristics of the desert pavement (specifically soil infiltration, runoff generation, and soil erosion), in addition to specifics on binder deterioration and reapplication rates and downslope flow convergence leading to gully erosion, was not investigated nor stated. As such, the DEIS fails to adequately address the potentially significant impacts posed by the widespread use of soil binders.

09-39

Wind Erosion: Wind erosion creates dust and dust has been shown to be detrimental to desert plants and cryptobiotic crusts.

The Applicant has not provided information regarding the cryptobiotic crusts, if any, on the project site. Without such information, the affects of construction and operation of the project on wind erosion and its direct and indirect impacts on local and off site plant and cryptobiotic crusts is not known.

O10-4

The Salton Sea Restoration Project, faced with the same challenge, evaluated dust emissions with on-site testing. According the Salton Sea Ecosystem Restoration Draft EIR:

"There is no agreed upon method to estimate PM10 emissions or wind blown dust, and there are many uncertainties and limitations associated with the available tools and methods. The MacDougall Method is a tool used to estimate particulate matter emissions that relies heavily on emission factors developed through us of wind tunnel and/or Portable In-Situ Wind Erosion Laboratory (PI-SWERL) study results. The MacDougall Method was developed to estimate dust emissions from land with little or no vegetation. Such lands may have the ability to form a crust, which can minimize dust emissions. Other available methods for dust emissions estimation are not able to take into account the ability of solids to form a crust. The method relies on actual field measurements of soil with and without crust to estimate PM10 emissions. Soils with vary crust strengths or stabilities may also be studied....Wind Tunnels usually operate in laboratories, but a portable version is available and was used... for measurements at the Salton Sea."

The MacDougall method is an In-Situ method, normally used to quantify PM2.5 and PM10 emissions, common air pollutants. These pollutants affect human health but they are just one result of soil wind erosion and are know to harm plant communities.

010-4

Dust grains of less than PM10 predominate on plant surfaces, and such deposition frequently results in dust clothing shrubs boarding dirt roads or downwind of a barren source areas, such as a dry lake (Sharifi, Gibson, Rundel: 1997) Medium and large soil grains typically move relatively short distances by modified saltation or short-term suspension, whereas smaller particulates (<20mm) may enter long-term suspension and be transported greater distances (Sharifi, Gibson, Rundel: 1997) Analysis of wind blown dust effects on desert plants have shown reduced maximum rates of photosynthesis to between 21 and 58 percent compared to control plants. Dusted leaf temperatures and photosynthetic stems were 2-3 degrees Celsius higher due to greater absorption of infrared radiation; heavily dusted shrubs had smaller leaf areas and greater leaf -specific masses suggesting lowered primary production in desert plants exposed to dust (Sharifi, Gibson, Rundel: 1997)

Applicant has not provided wind erosion information based on the MacDougall Method or any other In-Situ method such as Big Springs Number Eight (BSNE). Therefore, it's reasonable to conclude that any analysis of air pollution or wind erosion conducted to date is not adequate. Clearly dust from wind crosion affects plants and cryptobiotic crusts. Without adequate wind erosion information, impacts from wind erosion to onsite and offsite plant communities cannot be determined.

We believe that additional analysis, using In-Situ methods, should be conducted so that impacts to onsite and offsite plant communities are known.

Cumulative Effects and the Salton Sea: The project site lies entirely within the Salton Sea Watershed. The Salton Sea Restoration Act of 2003 requires the Secretary of undertake an Ecosystem Restoration Study to determine a preferred alternative for the

restoration of the Salton Sea ecosystem and the permanent protection of wildlife dependent on that ecosystem. The preferred alternative must provide the maximum feasible attainment of the following objectives:

 Restoration of long term stable aquatic and shoreline habitat for the historic levels and diversity of fish and wildlife that depend on the Salton Sea:

 Elimination of air quality impacts from the restoration project; and

· Protection of water quality resources.

(Salton Sea Ecosystem Restoration Program: Preferred Alternative Report and Funding Plan, California Department of California Department of Water Resources, Department of Fish and Game)

Plants are an integral part of the Salton Sea aquatic and shoreline habitat and its tributaries. The estimated cost of the restoration plan is \$8.9 billion.

The sediment transport study recommends several mitigation measures, one of them is:

"It is recommended all sediment basins be deleted from the proposed plan."

The US Army Corps of Engineers Preliminary Jurisdictional Determination Form (01/05/2010) states:

"The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time."

The Applicant's AFC Section 5.5 - Surface Water Quality states:

"Project surface water that does not infiltrate or evaporate ultimately drains approximately 30 miles north to the Salton Sea."

In addition, the "Review of Federal and State Surface Waters for the Stirling Energy Systems Solar 2 Project", February 23, 2009 states:

"URS conducted a site visit with the Corps on January 8, 2009, and the Corps noted indication of flooding on lands and buildings at Dixieland, which is located east of the Westside Main Canal/Dixie Drain systems, and at the intersection with Evan Hewes Highway. Laurie Monarres from the Corps indicated that she had talked to some field staff from the IID, who stated that flooding occurred in this area."

We argue that the project site in fact contains jurisdictional waters of the United States and that construction and operational activities from this project and other planned

O10-5

renewable energy projects within the Salton Sea watershed would increase erosion, thus increasing sediment transported to the Salton Sea. The Salton Sea Restoration Plan includes two 200 acre sedimentation basins. However, the \$8.9 billion project is not designed to accommodate the cumulative additional sediment from this project or others like it in the Salton Sea watershed.

The Salton Sea Executive Summary states:

"Impacts to special status species would result primarily from construction of sedimentation and distribution basin at river deltas...particularly at the southern shore (of the Salton Sea.)"

010-5

Significant impacts, including cumulative impacts, on the Salton Sea habitat, including plants, from increased sediment have not been adequately analyzed. We believe that additional analysis should be conducted so that impacts on plant communities of the Salton Sea and its watershed are known.

Response: There are very limited areas on the project site that currently support biotic crusts. Much of the site was used for gravel mining in the past and the site is currently used for some recreation uses which may have disturbed or continue to disturb biotic crusts on the site. There are also limited areas on the site that support physical crusts. Therefore, as a result of the limited amounts of these types of soils on the site, the Build Alternatives are not expected to result in substantial adverse impacts to biotic or physical crusts.

# D.4.7.9 Rare Plants Mitigation

Comments: F2-20, F2-30, O9-21, O9-44, and O9-45.

Finally, the DEIS provides no assessment of the cumulative impacts on waters of the United States that are likely to result from the proposed Project and other proposed energyrelated projects in the area. In short, the Project, as proposed, does not comply with EPA's Guidelines, nor with the Corps' and EPA's regulations governing mitigation under Section 404 of the CWA.

# F2-20

F2-20

#### Recommendations:

- Discuss the steps that will be taken to avoid and minimize impacts to waters of the
  United States. To the extent any aquatic features that could be affected by the Project
  are determined not to constitute waters of the United States, EPA recommends that
  the FEIS characterize the functions of such features and discuss potential mitigation.
- Include in the FEIS a mitigation plan for unavoidable impacts to waters of the United States, as required by Corps and EPA regulations.



## Sensitive Plant Species and Vegetation

The DEIS indicates that CEC staff and BLM are concerned that special status plant species may have been overlooked due to inconsistent site surveys and varying levels of botanical expertise (at pg. ES-22, C.2-3 and C.2-20). The DEIS concludes that survey results were not considered adequate to assess presence or absence of a species within the project area.

It is EPA's understanding that the proposed Project will clear vegetation along 130 foot wide parallel rows of SunCatchers. Alternating 72 foot wide rows would be left undisturbed (at pg. C.7-34). The FEIS should further discuss how these cleared rows will increase the potential for sediment transfer in the cleared areas as mentioned on page C.7-34. The DEIS also indicates that while grading would not occur on the entire site, grading would directly affect wildlife and other special status species by removal of shrubs and herbaceous vegetation, resulting in loss and fragmentation of cover, breeding, and foraging habitat. Severe damage involving vegetation removal and soil disturbance can take from 50 to 300 years for partial recovery; complete ecosystem recovery may require over 3,000 years (at pg. C.2-28). Further, during construction, wildlife could be crushed or entombed in dens or burrows, and could collide with vehicles (at pg. C.2-29). In light of these impacts, EPA has concerns as the vegetation removal and placement of facilities in the washes would have indirect effects that have not been fully assessed (at pg. C.2-21).

#### Recommendations:

- Incorporate BIO-19 into the FEIS and ROD which requires botanical surveys to be conducted and avoidance of rare plants during project construction and operation.
- Further discuss and quantify the expected direct and indirect effects of vegetation removal and placement of facilities under each alternative.
- Discuss and propose mitigation measures for the increased sediment transfer likely to result from the cleared rows between SunCatchers.
- Discuss the impacts associated with pile driving the SunCatcher pedestals into the ground and include mitigation measures to ensure maximum avoidance of sensitive species on site during construction.
- Discuss the impacts associated with connecting the SunCatchers by gas and electrical transmission lines buried in two foot wide trenches. Include mitigation measures to ensure maximum avoidance of sensitive species on site during construction.
- Discuss alternatives to any proposed vegetation mowing that would result from a
  maintenance regime. Excess mowing may suppress vegetation through carbohydrate
  starvation, reducing its water use, and discouraging reproduction by seed. Mowing is
  likely to promote proliferation of non-native invasive weeds as well.
- Mitigation measures that result from consultation with the US Fish and Wildlife Service to protect sensitive biological resources should be included in the FEIS and, ultimately, the ROD.

F2-30

## E. RARE PLANTS ON PROJECT SITE

environment is inadequately defined in the DEIS.

The DEIS acknowledges that the types and quantities of rare plants had not been determined at the time that the DEIS was published due to the inadequacy of the Applicant's botanical survey efforts. The DEIS proposed that surveys be conducted for special status plants in the spring and fall of 2010. As a result, DEIS correctly concludes the applicant's botanical surveys have not provided an adequate basis for analyzing potential Project impacts.

Although the SA/DEIS attempts to analyze the impacts and formulate mitigation measures before adequate survey data are obtained, the analysis and mitigation may change after the additional survey efforts are better able to identify impacts to rare plants. The baseline data that makes up the affected environment should be shared with the public and the public should have the opportunity to comment. Without this information, the affected

B. THE DEIS FAILS TO CONSIDER EFFECTIVE MITIGATION FOR IMPACTS TO LISTED RARE PLANTS

The strategy for mitigating impacts to any State or federally listed rare plant species found on the Project site focuses on establishing a buffer zone around the population(s). The size of the buffer would depend on the proposed use of the immediately adjacent lands, and it would include consideration of the plant's ecological requirements (e.g., sunlight; moisture; shade tolerance; edaphic, physical, and chemical characteristics) that are identified by the Designated Biologist (there is no requirement for the Designated Biologist to examine the plant's ecological requirements).

Although the project technology is exactly the same as the Calico Solar Project, the BLM concluded a 250-foot buffer would be needed for on-site plant protection on Calico, whereas BLM concluded that a buffer of 50-feet [and perhaps smaller] would be adequate for the Imperial Valley Project. 123 According to biologist Scott Cashen, this discrepancy highlights the fact that the DEIS's approach to establishing adequate buffers is largely guesswork, 124 Inherently, this may be the case because: (1) the ecological requirements of most plant species are poorly understood; and (2) there have not been any studies on the effects of SunCatchers installation (including changes to hydrology) on the surrounding microclimate. 125 Thus, there is no scientific basis to conclude establishing the prescribed 50-foot buffer will mitigate Project impacts to a less than significant level.

09-21

# C. THE DEIS FAILS TO DESCRIBE ENFORCEABLE MITIGATION FOR IMPACTS TO NON-LISTED RARE PLANTS

09-45

The strategy for mitigating impacts to any non-listed special-status species (e.g., CNPS listed species) found on the site is comprised of two parts. First, the Condition of Certification directs the applicant to avoid impacts

"where feasible." However, the DEIS does not define what is considered "feasible." Consequently, the condition is at the sole discretion of the applicant, and it is unenforceable.

Second, for impacts that are not "feasible" and that would result in loss of more than 10% of the known individuals within an existing population, the DEIS requires the project owner to preserve existing off-site occupied habitat (that is not already part of public lands) in perpetuity at a 2:1 mitigation ratio. Thus, if avoidance is not feasible, the ability to mitigate impacts is entirely dependent on the assumptions that the applicant will first be able to identify sufficient quantities of occupied habitat on private lands, and then be able to acquire those lands from willing sellers. There is a high likelihood that due to the rarity of the plants, the applicant will be unable to locate any suitable private parcels that could serve as compensation habitat for proposed project impacts to special-status plant species.

09-45

Therefore, the DEIS fails to describe enforceable mitigation for impacts to non-listed rare plants. The DEIS must be revised to include an enforceable mitigation strategy.

Response: These comments raised concerns about the adequacy of the proposed mitigation for rare plants and non-listed rare plants. Specifically, the commenter indicated that a 50-foot buffer was inadequate to protect rare plants and that the project would fail to protect non-listed rare plants. A total of 5 special-status plant species were found during spring 2010 botanical surveys. One plant, Wiggins' croton (Croton wigginsii) is listed as BLM sensitive and CNPS 2.2. The remaining 4 special-status species plants which are listed by the CNPS, but have no other Federal or State status, are Harwood's milk-vetch (Astragalus insularis var. harwoodii) (CNPS 2.2), brown turbans (Malperia tenuis) (CNPS 2.3), Utah milk vineweed (Funastrum utahense), and Thurber's pilostyles (Pilostyles thurberi) (CNPS 4.3). To address special-status species that may occur on the project site after late summer/early fall monsoonal rainstorms typical in the project area, botanical surveys are scheduled for fall 2010. There are 2 special-status species with the potential to occur on the project site that are targets of the late summer/early fall 2010 botanical surveys: Abram's spurge (Chamaesyce abramsiana) (CNPS 2.2) and curly herissantia

(Herrisantia crispa) (CNPS 2.3). Neither of these has Federal or State status and neither is listed as BLM sensitive. If project impacts to special-status plants are unavoidable, the applicant will be responsible for 2:1 mitigation as indicated in the project mitigation measures.

#### D.4.7.10 Salton Sea

Comments: F2-22, F2-24, O1-25, O9-3, O9-40, and O10-5.

EPA is also concerned about the indirect impacts to the Salton Sea. As mentioned above, the ephemeral waters traversing the Project site flow to the Westside Main Canal and Coyote Wash, tributaries to the New River, which drains to the Salton Sea. The DEIS fails to assess the indirect impacts to the Salton Sea from the proposed Project. Indirect effects could include, but are not limited to: 1) changes in hydrology and sediment transport into the New River and Salton Sea; 2) increases in volume and velocity of polluted stormwater from impervious surfaces on the Project site; 3) decrease in water quality from the impairment of ecosystem services such as water filtration, groundwater recharge, and attenuation of floods; 4) disruption of hydrological and ecological connectivity from upstream of the Project to the Salton Sea; and 5) decreases in biodiversity and ecosystem stability. Ensuring maximum avoidance of Waters and, thereby, reducing potential discharges into waters should reduce the indirect effects to the New River and Salton Sea.

F2-22

#### Recommendation:

Maximize avoidance of Waters to reduce potential discharges into waters, as
described above, to reduce indirect effects to New River and Salton Sea, which are
waters of the United States.

Clean Water Act Section 303(d)

Section 303(d) of the CWA requires each State to develop, every two years, a list of impaired waters that do not meet water quality standards; to establish priority rankings of such waters; and to develop Total Maximum Daily Loads (TMDLs) for the pollutants causing impairment.

The State of California has listed the New River and the Salton Sea under CWA 303(d) as impaired water bodies. The New River is impaired by several pollutant/stressors such as pesticides and nutrients. The Salton Sea is impaired by nutrients, salinity and selenium (at pg. C.7-11). Wastewater, agricultural return flows, and industrial point sources are noted as sources. Increased degradation of water quality, modification of flow, and sedimentation will worsen existing impairments in these watershodies and may adversely affect beneficial uses throughout the watershed.

F2-24

#### Recommendation:

Adopt measures, to be included in the Record of Decision (ROD), to avoid and
minimize discharges into onsite waters, alteration of flow, and sedimentation to
prevent further impairment of water quality downstream.

01-25

C.7 - Hydrology, Water Use, and Water Quality (Soil and Water Resources) This section simply states that the project conforms to all applicable LORS, with no discussion of what LORS, if any, apply to soil loss from grading and erosion, or soil contamination by leakage of evaporation ponds and other spillage absorbed by the soils. It is appropriately admitted (p. C.7-1, 2) that the effects of changed morphology and the nature of sediment carried offsite by runoff are not known. Thus, it cannot be accurately stated that the project conforms to all applicable LORS, and the effects beyond closure cannot be redicted.

01-25

For example, the Project is in the Salton Sea watershed and, as designed, will result in direct, indirect and cumulative effects on this watershed. For the most part, these impacts were not even disclosed and,

# f. Salton Sea National Wildlife Refuge

The DEIS does not address the Project's potentially significant impacts to the Salton Sea National Wildlife Refuge. Moreover, the Project and its associated pipelines may not be compatible with the purposes of the National Wildlife Refuge System Administration Act of 1966 ("Refuge Act"), 16 U.S.C. §§ 668dd-668ee.

The Refuge Act was enacted for the conservation of fish and wildlife, including species that are threatened with extinction, all lands, waters, and interests therein administered by the Secretary as wildlife refuges, wildlife management areas, or waterfowl production areas. (16 U.S.C. § 668dd(a)(1).) The mission of the Refuge System is to "administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats..." (Id. § 668dd(a)(2).) The system must be administered not only to "provide for the conservation of fish," but also to "ensure that the biological integrity, diversity, and environmental health of the System are maintained." (Id. § 668dd(a)(4).)

The Refuge Act allows the U.S. Fish and Wildlife Service to permit only those uses within the Refuge that "are compatible with the major purposes" for which the area was established. (16 U.S.C. § 668dd(d)(I/A).) The definition of "compatible use" is a wildlife-dependent recreational use or any other use of a refuge that "will not materially interfere with or detract from the... purposes of the refuge." (16 U.S.C. § 668ee(1).) In order to be "compatible," a use must not materially interfere with stated Refuge purposes.

The Salton Sea National Wildlife Refuge was established in 1930 for the purpose of providing wintering and spring migration habitat for birds. The Project is incompatible with the purposes of the Refuge. The purposes of the Refuge include:

- 1) A refuge and breeding ground for birds and wild animals. (Executive Order 5498, dated November 25, 1930)
- 2) Use as an inviolate sanctuary, or for any other management purpose, for migratory birds. (16 U.S.C. § 715d, Migratory Bird Conservation Act)
- 3) Management and control of migratory waterfowl and other wildlife. (16 U.S. C. § 695, Lea Act)

The Project may irrevocably violate the purpose of the Refuge as breeding ground for birds and other wildlife by reducing the amount of available water for the refuge and releasing salts and other sediment into the already overburdened watershed. 116 The BLM must evaluate this potentially significant impact.

Applicant has not provided wind erosion information based on the MacDougall Method or any other In-Situ method such as Big Springs Number Eight (BSNE). Therefore, it's reasonable to conclude that any analysis of air pollution or wind erosion conducted to date is not adequate. Clearly dust from wind erosion affects plants and cryptobiotic crusts. Without adequate wind erosion information, impacts from wind erosion to onsite and offsite plant communities cannot be determined.

We believe that additional analysis, using In-Situ methods, should be conducted so that impacts to onsite and offsite plant communities are known.

Cumulative Effects and the Salton Sea: The project site lies entirely within the Salton Sea Watershed. The Salton Sea Restoration Act of 2003 requires the Secretary of undertake an Ecosystem Restoration Study to determine a preferred alternative for the

09-40

restoration of the Salton Sea ecosystem and the permanent protection of wildlife dependent on that ecosystem. The preferred alternative must provide the maximum feasible attainment of the following objectives:

- Restoration of long term stable aquatic and shoreline habitat for the historic levels and diversity of fish and wildlife that depend on the Salton Sea:
- Elimination of air quality impacts from the restoration project; and
- · Protection of water quality resources.

(Salton Sea Ecosystem Restoration Program: Preferred Alternative Report and Funding Plan, California Department of California Department of Water Resources, Department of Fish and Game)

Plants are an integral part of the Salton Sea aquatic and shoreline habitat and its tributaries. The estimated cost of the restoration plan is \$8.9 billion.

The sediment transport study recommends several mitigation measures, one of them is:

"It is recommended all sediment basins be deleted from the proposed plan."

The US Army Corps of Engineers Preliminary Jurisdictional Determination Form (01/05/2010) states:

"The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time."

The Applicant's AFC Section 5.5 - Surface Water Quality states:

"Project surface water that does not infiltrate or evaporate ultimately drains approximately 30 miles north to the Salton Sea."

In addition, the "Review of Federal and State Surface Waters for the Stirling Energy Systems Solar 2 Project", February 23, 2009 states:

"URS conducted a site visit with the Corps on January 8, 2009, and the Corps noted indication of flooding on lands and buildings at Dixieland, which is located east of the Westside Main Canal/Dixie Drain systems, and at the intersection with Evan Hewes Highway. Laurie Monarres from the Corps indicated that she had talked to some field staff from the IID, who stated that flooding occurred in this area."

We argue that the project site in fact contains jurisdictional waters of the United States and that construction and operational activities from this project and other planned

O10-5

renewable energy projects within the Salton Sea watershed would increase erosion, thus increasing sediment transported to the Salton Sea. The Salton Sea Restoration Plan includes two 200 acre sedimentation basins. However, the \$8.9 billion project is not designed to accommodate the cumulative additional sediment from this project or others like it in the Salton Sea watershed.

The Salton Sea Executive Summary states:

"Impacts to special status species would result primarily from construction of sedimentation and distribution basin at river deltas...particularly at the southern shore (of the Salton Sea)." O10-5

Significant impacts, including cumulative impacts, on the Salton Sea habitat, including plants, from increased sediment have not been adequately analyzed. We believe that additional analysis should be conducted so that impacts on plant communities of the Salton Sea and its watershed are known.

Response: These comments stated that the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) did not analyze the potential effects the project would have on the Salton Sea National Wildlife Refuge. The specific concerns noted were the reduction in available water for the Refuge and increased salt and sediment into that watershed. The reduction of water available for the Refuge would be related to the operations of the Seeley Wastewater Treatment Plant (SWWTP) and how much water is released from the SWWTP into the New River. The IVS project and the other Build Alternatives propose to treated water from the SWWTP during operations and construction when that water becomes available. The Seeley County Water District is currently preparing an Environmental Impact Report (EIR) under the California Environmental Quality Act (CEQA) to assess the affects of proposed upgrades to the SWWTP to increase the amount of treated water produced at that facility. Those upgrades are outside the jurisdiction of the BLM and, therefore, are not considered in the FEIS for the IVS project. In regard to increased salt and sediment loads in the watershed, the IVS project has been designed to maintain the existing pre-project sediment transport conditions and will not result in any changes in downstream hydrology or sediment loads.

### D.4.8 Climate Change

These comments raised questions regarding climate change.

Comments: F2-33, O2-35, O8-14, and O9-38.

#### Greenhouse Gases

EPA commends CEC and BLM for including a substantive discussion on greenhouse gases as well as estimates of carbon dioxide emissions from the construction of the proposed Project. Scientific evidence supports the concern that continued increases in greenhouse gas emissions resulting from human activities will contribute to climate change. Effects on weather patterns, sea level, ocean acidification, chemical reaction rates, and precipitation rates can be expected. These changes may affect the proposed Project as well as the scope and intensity of impacts resulting from the proposed Project. The DEIS does not include measures to avoid, minimize, nor mitigate the effects of climate change on the proposed Project.

#### Recommendations:

 Consider how climate change could affect the proposed Project, specifically within sensitive areas, and assess how the impacts of the proposed Project could be exacerbated by climate change.

Identify specific mitigation measures needed to 1) protect the Project from the effects
of climate change, 2) reduce the Project's anticipated adverse air quality effects,
and/or 3) promote pollution prevention or environmental stewardship.

 Identify strategies to effectively monitor for climate change impacts in the surrounding area, such as monitoring groundwater change or special status species.

 Quantify and disclose the anticipated climate change benefits of solar energy. We suggest quantifying the greenhouse gas emissions that would be produced by other types of electric generating facilities (solar, geothermal, natural gas, coal-burning, and nuclear) generating comparable amounts of electricity, and compiling and comparing these values.

F. The DEIS Fails to Adequately Identify, Analyze and Off-set Impacts to Air Quality and GHG Emissions.

Federal courts have squarely held that NEPA requires federal agencies to analyze climate impacts. Center for Biological Diversity v. National Highway Traffic Sofety Administration, 508 F.3d 508 (9th Cir. 2007). As most relevant here, NEPA requires consideration of greenhouse gas emissions ("GHG emissions") associated with all projects and, in order to fulfill this requirement the agencies should look at all aspects of the project which may create greenhouse gas emissions including operations, construction, and life-cycle emissions

O2-35

F2-33

from materials. Where a proposed project will have significant GHG emissions, the agency should identify alternatives and/or mitigation measures that will lessen such effects.

As part of the NEPA analysis federal agencies must assess and, wherever possible, quantify or estimate GHG emissions by type and source by analyzing the direct operational impacts of proposed actions. Assessment of direct emissions of GHG from on-site combustion sources is relatively straightforward. For many projects, as with the proposed project, energy consumption will be the major source of GHGs. The indirect effects of a project may be more far-reaching and will require careful analysis. Within this category, for example, the BLM should evaluate, GHG and GHG-precursor emissions associated with construction, electricity use, fossil fuel use, water consumption, waste disposal, transportation, the manufacture of building materials (lifecycle analysis), and land conversion. Moreover, because many project may undermine or destroy the value of carbon sinks, including desert soils, projects may have additional indirect effects from reduction in carbon sequestration, therefore both the direct and quantifiable GHG emissions as well as the GHG effects of destruction of carbon sinks should be analyzed.

The discussion of greenhouse gas emissions ("GHG") in the DEIS notes that the solar generation itself will produce no GHGs "but there is direct and indirect gasoline and diesel fuel use in the maintenance vehicles, offsite delivery vehicles, staff and employee vehicles, and the two diesel-fueled emergency engines. Another GHG emission source for this proposed project is SF6 from electrical equipment leakage." DEIS, Greenhouse Gas Appendix, A-1-7. There is no discussion of reducing these sources by using alternative fuels or highly efficient vehicles and equipment.

The GHG emissions from the construction phase of the project are stated to be over 31,000 metric tons CO2 equivalent (Greenhouse gas table 2, DEIS A-1-6). Again, there is no discussion of reducing these emissions by using more efficient equipment or vehicles.

Moreover, leakage of SF6 is of particular concern as it is many times more potent greenhouse gas than CO2—indeed, its potential as a GHG has been estimated at 23,900 times that of CO2 (for a 100 year time horizon) and it can persist in the atmosphere far longer than CO2 as well—up to 3,200 years. The DEIS fails to state the actual amount of SF6 that is estimated to leak from equipment and provides only that 271.83 MTCO2E is expected in emissions each year. No information is provided on the calculation. Moreover, the DEIS does not analyze any alternatives to avoid or minimize the long-term emissions of this powerful GHG from operations and no miticulation measures are provided.

The DEIS also fails to adequately address other air quality issues most importantly PM10 both during construction and operation which is of particular concern in this area which is already in serious nonattainment. It is clear that on site grading and roads between the suncatcher components will increase bare soils and increase PM10 may be introduced into the air

by wind and that the use of the roads between the suncatchers will lead to additional PM 10 emissions from the site.

The DEIS also fails to analyze the impacts to air quality and GHG emissions should a fire occur due to the extensive on-site hydrogen system. Of particular concern is that plans to minimize air quality impacts from construction, operations, and decommissioning are all deferred to later development with no clear standards.

BLM fails to identify any significant GHG emissions and therefore does not provide for avoidance, minimization, or mitigation. BLM has also failed to include the loss of carbon sequestration from soils in its calculations or to provide a lifecycle analysis of GHG emissions that include manufacturing and disposal. Moreover, it is undisputed that in the near-term GHG emissions will increase emissions during construction, and in the manufacturing and transportation of the components. BLM fails to consider any alternatives to the project that would minimize such emissions or to require that these near-term emissions be off set in any way.

02-35

Although the proposed project may reduce GHG's overall it is admittedly experimental and will cause GHG emissions that are not accounted for or off-set, BLM completely fails to explore this aspect of the impacts of the project in the DEIS in violation of NEPA.

# Renewable Energy requires additional gas fired generation

#### What are the GHG impacts?

We have known this fact for a long time. Now, however, SDG&E admits it pretty clearly in a San Diego Union Tribune article (5-23-10): Renewables need helping hand from gas: www.signonsandiego.com/\_irenewables-meed-helping-hand-from-gas/

"When a cloud goes over a solar farm or the wind dies down, a gas plant has to kick it up a notch to make up the difference. "People need to understand the intermittency chollenge we have' said SDG&E's Niggli. The wind comes and goes, and on the hottest doys of the year, there's no wind, and you still need to provide power to your customers...These resources are not under our control, but under the control of noture." Gas loants take un the slock."

08-14

What is the backup generation for IV Solar /Solar Two? What are the GHG impacts associated with that backup power generations which is a part of the whole of the project/action?

#### d. Climate Change

The DEIS failed to consider the role that climate change may have in shaping the significance of the Project impacts on the hydrologic conditions on the Project site. Climate change can have an influential role in shaping the project's impacts on the environment in terms of hydrologic response and soil erosion. <sup>113</sup> Provided that intense summer storms are responsible for a majority of the runoff that occurs at the project site, the Nature Conservancy would suggest that summer rainfall in southeastern California may increase by as much as 50% by 2080 in the summer, which could be accompanied by significant increases in rainfall intensity and erosivity (Angel et al., 2005). <sup>114</sup>

These significant increases in rainfall quantity, intensity, and erosivity would have a profound impact on the landscape, especially on the morphology of the washes where solar dishes are proposed. 115 The impacts to the landscape would, in turn, significantly impact the structural stability and flood preparedness of the solar dishes placed in the washes, and coupled with

water quality impacts to downstream impaired water bodies would ensue.

Project design and best management practices must be analyzed in the DEIS to deal with these future changes in the climate.

increased sedimentation from the solar arrays, subsequent and significant

09-38

09-38

Response: The effects of climate change on the IVS project, the Agency Preferred Alternative, and the other Build Alternatives are difficult to predict. One primary affect of climate change is sea level rise, which, given the location of the IVS project site well away from the coast and the Pacific Ocean, it is unlikely that sea level rises would pose much of a threat to any solar project on the IVS project site. Another principal affect of climate change is the potentially greater incidence of wild fires. Given the desert location of the project and the limited vegetation on the site, it is unlikely that increased wildfires as a result of climate change will pose a threat substantially different than the existing risks associated with wildfires as discussed in Sections 3.6 and 4.6, Fire and Fuels Management, in the FEIS. None of the other recognized potential effects of climate change are expected to pose much of a threat to the IVS project site or a solar project on that site.

When the amount of sunlight arriving at the IVS facility is reduced, the amount of electricity produced will also be reduced. This reduction in electrical production will result in a transfer of electrical power from somewhere else in the grid. However, given the gradual replacement of coal, natural gas, and other carbon-based fuel fired power plants with clean renewable energy sources, such as hydro, wind, and solar powered plants, the likelihood that this power transfer will result in a "...gas plant having to kick it up a notch..." is diminishing. The backup to the IVS

power plant is the entire existing power grid as well as future clean energy projects as they come on line.



Appendix D - Public Comments on the DEIS

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#### D.4.9 Cultural Resources

The comments regarding cultural resources addressed several topics as discussed below

# D.4.9.1 Archaeological Studies

Comments: NA1-7, O6-7, O9-6, O9-33, and O9-49.

#### C. The Cultural Resource Evaluation Has Occurred Without Required Governmentto-Government Consultation with the Quechan Tribe.

BLM has not engaged in government-to-government consultation with the Tribe regarding the impacts of this project on cultural resources. Nor has the Tribe received any of the reports that identify cultural resources within the Project Area. Thus, at this time, the Tribe's (and other stakeholders) ability to comment on the impacts to cultural resources is impaired by lack of information

The NHPA requires ongoing consultation with interested Indian tribes throughout the identification and evaluation of cultural resources and the resolution of adverse effects. 36 C.F.R. § 800.3(f)(2); 800.4(a)(4)(§ 800.5(c)(2)(iii)); 800.6(a); 800.6(b)(2), etc. Here, pursuant to the Draft Programmatic Agreement, all evaluation and resolution of effects will occur after the decision has been made. The Draft Programmatic Agreement fails to provide for the full level of tribal consultation required by 36 C.F.R. Part 800.

There are several federal laws that mandate ongoing consultation with Indian tribes where federally approved actions will affect tribal interests. See Executive Order 12875, Tribal Governance (Oct. 26, 1993) (the federal government must consult with Indian tribal governments on matters that significantly or uniquely affect tribal governments); Executive Order 12898, Environmental Justice (Feb. 11, 1994) (federal government must consult with tribal leaders on steps to ensure environmental justice requirements); Executive Order No. 13007, Sacred Sites (May 24, 1996) (federal government is obligated to accommodate access to and ceremonial use of Indian secred sites by Indian religious practitioners, avoid adversely impacting the physical integrity of sites, and facilitate the identification of sacred sites by tribes); Executive Order No. 13084, Consultation and Coordination with Indian Tribal Governments (May 14, 1998) (places burden on federal government to obtain timely and meaningful input from tribes on matters that significantly or uniquely affect tribal communities); Executive Order 13175, Consultation with Indian Tribal Governments (Nov. 6, 2000) (the federal government shall seek to establish regular and meaningful consultation with tribes in the development of federal policies affecting tribes).

The Tribe has identified certain statements in the DEIS that may be inaccurate and that would benefit from consultation with the Tribe. For example, pages C.2-110 and 111 contain a discussion of the Yuha Basin Discontiguous District. According to the Tribe, it is likely that the sites within the project area are directly related to those within the Yuha area. However, due to the lack of consultation or the provision of cultural reports or maps, it is not possible to provide additional meaningful comments on this topic at this time.

To date, BLM has failed to fulfill its obligation to consult on a government-togovernment basis with the Quechan Tribe. BLM must fulfill this obligation prior to issuance of the ROD. Also, the Draft PA should be amended to require ongoing consultation with the Tribe, and tribal monitoring, if the development process goes forward.

Consultation under state law may also be required pursuant to California Government Code § 65562.5, because the project land is currently designated as open space under Imperial County zoning. Section 65562.5 requires local governments to consult with tribes "for the purpose of developing treatment with appropriate dignity of the place, feature, or object in any corresponding management plan." This section suggests that consultation may be required when development is proposed to occur in open space lands containing cultural resources of significance to tribes.

NA1-7

NA1-7

The Project would have significant cultural impacts and could "wholly or partially destroy all archeological sites on the surface of the project area." SA/DEIS, p. C.3-102. The discussion of impacts to cultural resources is incomplete and inadequate. Assessment of the short and long term adverse impacts to cultural resources is "[10 [b]e [p]provided." SA/DEIS, p. ES-15. The Project would have significant impacts on "a presently unknown subset of approximately 330 known prehistoric and historical surface archaeological resources and may have significant impacts. ... on an unknown number of buried archaeological deposits, many of which may be determined historically significant...."
SA/DEIS, p. C.3-1. The project would also have indirect cultural impacts, because the Flat-tailed horned lizard ("FTHL") has cultural significance to the Tribe — it is "part of the Tribe's creation story"—but, as discussed below, FTHL would be adversely affected by the Project. Tribe Comments, p. 9. Indirect cultural impacts would also result from the Project's aesthetic impacts on culturally significant areas. Id. at 7.

As discussed more fully in Exhibit A to the Tribe Comments, BLM has failed to satisfy its obligations under section 106 of the National Historic Preservation Act ("NHPA"), 16 U.S.C. section 470(f). Tribe Comments, Exhibit A, at 1. This section of the NHPA requires agencies to take into account the impact of effects of their actions on historical resources "prior to the issuance of any license." 16 U.S.C. § 470(f). "Instead of completing this required process, BLM is opting to use a programmatic agreement to defer evaluation, mitigation, and treatment until after approval. . . ." Tribe Comments, Exhibit A, at 2.

O6-7

Here again the assessment of impacts and the formulation of mitigation measures is impermissibly deferred. CEC plans to "fulfill the bulk of its obligations[] under CEQA" by conditioning approval on the applican's compliance with a programmatic agreement whose contents are not disclosed. SA/DEIS, p. C.3-12. "[F]ormal evaluations of some ethnographic resources and all archeological resources... will occur subsequent to [CEC/BLM] decisions on the proposed action." SA/DEIS, p. C.2-106. Although "the ideal intensity of the geographic coverage in a project area of analysis would be 100%," here the "geographic coverage... presently includes a... sample of 25% of the archaeological sites...." SA/DEIS, pp. C.3-57 through 58. Moreover, the applicant's studies have been repeatedly rejected, giving little confidence in the 25% sample that was used. DEIS/SA, p. C.3-58. Before committing to the permanent destruction of irreplaceable cultural resources for the sake of a temporary project, CEC and BLM must, at the very least, determine the nature and extent of the cultural heritage they are obliterating.

Finally, the Project will adversely affect hundreds of cultural resources including ancient cremation zones, trails and village sites, and will directly block one of the most undisturbed sections of the Juan Bautista de Anza

O9-6

National Historic Trail, the first overland route from New Spain to San Francisco. The DEIS failed to provide ANY mitigation for impacts to cultural resources and instead explained that a future consultation process would work out the details of a mitigation proposal.

biological resources on the Project site that are sacred to local tribes and the impacts of the Project on the viewshed of sacred areas on or near the Coyote Mountains.  $^{101}$  The DEIS failed to analyze impacts to these cultural resources or to consult with Tribes early enough to ensure that these impacts could be considered in the DEIS  $^{102}$ 

Under Section 106 of the National Historic Preservation Act, the BLM has responsibility to consult with tribes and other parties to ensure that these impacts are identified as early as possible. Consultation must provide Indian tribes a reasonable opportunity to identify concerns about historic properties, advise on the identification of historic properties, including those of traditional religious and cultural importance, articulate its views on the undertaking's effects on such properties, and participate in the resolution of such effects. <sup>103</sup> CURE has submitted a comment letter to BLM on the Draft Programmatic Agreement explaining why the BLM's proposed process for identifying and mitigating impacts to cultural resources on the Project site violates the NHPA and NEPA, among other statutes. This letter and other letters with similar conclusions are attached.

09-33

The DEIS identified cultural resources and historic properties affected by the proposed undertaking in a improperly narrow area of potential effect C'APE') that failed to consider many potentially significant effects of the undertaking. The APE in the DEIS failed to include areas where the project may have visual, audible, or atmospheric effects on traditional, religious and cultural resources. The DEIS failed to identify an accurate area of potential area of Project effects on cultural resources and the BLM failed to consult with the Tribes early enough to gather information about cultural resources outside of the Project boundaries that may be impacted. The DEIS fails to provide an adequate or accurate analysis of potentially significant impacts to cultural resources on and adjacent to the site. The DEIS should be revised to take into account the non-archeological effects of the undertaking on irreplaceable cultural resources that were not analyzed in the DEIS.

# G. THE DEIS FAILS TO MITIGATE IMPACTS TO SIGNIFICANT CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act directs federal agencies to take into account the effects of their actions on historic properties PRIOR TO the issuance of any license. The DEIS informs the public that ALL mitigation will be included in a Programmatic Agreement ("PA") that is to developed in consultation with the Advisory Council, the State Historic Preservation Officer and other consulting parties. The Draft PA that was circulated to the consulting parties rather explicitly provides for the mitigation of effects of the Project on cultural resources to be taken into account -- to the extent they will be -- AFTER issuance of a license for the Imperial Valley Solar Project.

While the Advisory Council's regulations for carrying out consultation pursuant to Section 106 allow for "conducting or authorizing nondestructive project planning activities before completing compliance with section 106," 137 this may only occur if no decisions are made that would "restrict the subsequent consideration of alternatives to avoid, minimize, or mitigate the undertaking's adverse effects on historic properties." 138 This PA would permit BLM to authorize far more than "nondestructive project planning activities;" the PA would allow the BLM to adopt an alternative and authorize Project development, thus restricting the consideration of all other alternatives

09-49

The BLM may not move forward with the project prior to taking into account the adverse effects of the project on the cultural resources through the consultation process. To date, the consulting parties have not had any chance at all to develop mitigation for cultural resource impacts, the DEIS fails to propose any mitigation that is reasonably likely to mitigate the project's impacts.

Response: Archaeological studies of the surface of the Imperial Valley Solar (IVS) project site (footprint) were prepared by the consultant for the applicant, and deemed adequate by the United States Bureau of Land Management (BLM). A copy of that technical report was provided to interested tribes for comment. As part of good faith and reasonable identification efforts, government-to-government consultation is on-going, including providing for additional site visits seeking comments regarding National Register of Historic Places (National Register) evaluations. The National Register evaluations, in consultation with consulting parties and Tribes, will be completed where feasible prior to the Record of Decision (ROD).

F1-7

F1-7

# D.4.9.2 Cumulative Impacts on Cultural Resources

Comments: F1-7, NA1-8, O4-10, and O6-7,

#### B.3 - Cumulative Scenario

Section B.3, Cumulative Scenario, identifies many other past, present, or future projects that could impact the Anza NHT, and the California desert as a whole. Several of the wind projects identified in the EIS, proposed west of the site near Ocolillo, would be visible from the Anza NHT (Wind Zero, Ocolillo Express, TelStar Energies). The analysis does not identify projects underway or anticipated in Arizona near the Anza NHT alignment that could add to cumulative impacts (i.e. cultural, visual, noise, recreational) and further degrade the integrity of the trail. As a result, the cumulative impact analysis needs to be expanded in the final EIS to include such projects and specifically address cumulative impacts to the Anza NHT corridor.

Nonetheless, the cumulative analysis makes clear that the implementation of this and other energy projects would result in significant impacts to many environmental resources in the

California desert and elsewhere in the west. The result will be profound changes to the visitor's experience in these areas. NPS is very concerned about the implications of these long term changes. To ensure that projects are sited in appropriate locations using appropriate technologies to avoid impacts to our nation's natural and cultural heritage, it is imperative that landscape level analyses be conducted to fully evaluate the implications of the widespread deployment of renewable energy projects, and their associated support facilities, on the public lands. We recommend that the final EIS include a section discussing this aspect of cumulative impacts and efforts underway by the Bureau to address landscape level concerns.

D-242

D. The DEIS Fails to Thoroughly Evaluate Cumulative Impacts to Cultural Resources Associated With the Extensive Plans for Renewable Energy Development in Southern California and Arizona.

An EIS must examine the cumulative impacts of proposed actions. Neighbors of Cuddy Min. v. Alexander, 303 F3d 1059, 1071 (9th Cir. 2002). A cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such actions." 40 CFR § 1508.7. Failure to properly analyze cumulative impacts violates NEPA. See Lands Council v. Powell, 395 F.3d 1019 (9th Cir. 2004) (reversing EIS for failure to properly analyze cumulative impacts); Ocean Advocates v. United States Army Corps of Engineers, 402 F.3d 846 (9th Cir. 2005) (overturning FONSI due, in part, to failure to properly analyze cumulative impacts.

The DEIS contains no real analysis of the impact to cultural resources that will result from the extensive proposed development of renewable energy projects throughout the Southwestern United States. The DEIS notes that approximately one million acres of land are proposed for solar and wind energy development just in the southern California desert lands alone. ES-31. The DEIS offers an extremely cursory analysis of cumulative impacts to cultural resources on pages C2-144 and 145. This analysis is nothing more than a statement of the obvious that more renewable energy developments will likely result in more impacts to cultural resources. This simplistic analysis does not satisfy NEPA requirements. City of Carmel-By-The-Sea v. United States Department of Transportation, 123 F.3d 1142 (1997).

The DEIS also fails to comprehensively list the full extent of proposed solar projects within the area. For example, there are four proposed solar projects on abandoned agricultural lands near the project that do not appear to be addressed in the DEIS:

- Centinela Solar Energy (proposed 125 MW solar facility east of the Imperial Valley substation on approximately 1170 acres)
- Sunrise Gateway West Solar farm (proposed 250 MW facility located along I-8 west of El Centro on approximately 1130 acres)

Moreover, additional evaluation is needed to understand the cumulative impacts on recreational resources, specifically the Juan Bautista de Auza National Historic Trail, see National Park Service comments dated May 4, 2010 on the Proposed Imperial Valley Solar Project Draft EIS, pg. 3. A comprehensive cumulative impacts analysis including the evaluation of such information strengthens this document including associated mitigation measures and contributes to more informed decision-making.

04-10

NA1-8

The Project would have significant cultural impacts and could "wholly or partially destroy all archeological sites on the surface of the project area." SA/DEIS, p. C.3-102. The discussion of impacts to cultural resources is incomplete and inadequate. Assessment of the short and long term adverse impacts to cultural resources is "[10 [b]c [p]rovided." SA/DEIS, p. ES-15. The Project would have significant impacts on "a presently unknown subset of approximately 330 known prehistoric and historical surface archaeological resources and may have significant impacts . . . on an unknown number of buried archaeological deposits, many of which may be determined historically significant . . ."
SA/DEIS, p. C.3-1. The project would also have indirect cultural impacts, because the Flat-tailed horned lizard ("FTHL") has cultural significance to the Tribe – it is "part of the Tribe's creation story" – but, as discussed below, FTHL would be adversely affected by the Project. Tribe Comments, p. 9. Indirect cultural impacts would also result from the Project's aesthetic impacts on culturally significant areas. Id. at 7.

As discussed more fully in Exhibit A to the Tribe Comments, BLM has failed to satisfy its obligations under section 106 of the National Historic Preservation Act ("NHPA"), 16 U.S.C. section 470(f). Tribe Comments, Exhibit A, at 1. This section of the NHPA requires agencies to take into account the impact of effects of their actions on historical resources "prior to the issuance of any license." 16 U.S.C. § 470(f). "Instead of completing this required process, BLM is opting to use a programmatic agreement to defer evaluation, mitigation, and treatment until after approval. . . "Tribe Comments, Exhibit A, at Z.

Here again the assessment of impacts and the formulation of mitigation measures is impermissibly deferred. CEC plans to "fulfill the bulk of its obligation[s] under CEQA" by conditioning approval on the applicant's compliance with a programmatic agreement whose contents are not disclosed. SA/DEIS, p. C.3-12. "[Flormal evaluations of some ethnographic resources and all archeological resources. ... will occur subsequent to [CEC/ELM] decisions on the proposed action." SA/DEIS, p. C.2-106. Although "the ideal intensity of the geographic coverage in a project area of the archaeological sites. ..." SA/DEIS, pp. C.3-57 through 58. Moreover, the applicant's studies have been repeatedly rejected, giving little confidence in the 23% sample that was used. DEIS/SA, p. C.3-58. Before committing to the permanent destruction of irreplaceable cultural resources for the sake of a temporary project, CEC and BLM must, at the very least, determine the nature and extent of the cultural heritage they are obliterating.

Response: The cumulative impacts analysis in the Final Environmental Impact Statement (FEIS) discusses the effects of reasonably foreseeable future projects. Refer to Section 2.10, Overview of the Cumulative Impacts Analysis, for a list of reasonably foreseeable future projects considered in the analysis of the potential for the IVS project to contribute to cumulative adverse impacts on cultural resources. The cumulative impacts analysis for cultural resources is provided in Section 4.5.5, Cumulative Impacts, in the FEIS. That analysis indicates that the construction of the IVS project and other foreseeable cumulative projects will contribute to permanent long term adverse effects on cultural resources.

O6-7

# D.4.9.3 Government-to-Government Consultation

Comments: F2-36, F2-37, NA1-7, NA1-14, O6-7, O9-13, O9-33, and P11-19.

Executive Order 13175, Consultation and Coordination with Indian Tribal Governments (November 6, 2000), was issued in order to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, and to strengthen the United States government-to-government relationships with Indian tribes.

#### Recommendation:

 The FEIS should summarize the process and outcome of government-to-government consultation between the BLM and each of the tribal governments within the Project area, issues that were raised (if any), and how those issues were addressed in the selection of the proposed alternative.

Consultation for tribal cultural resources is required under Section 106 of NHPA. Section 106 of the NHPA requires a federal agency, upon determining that activities under its control could affect historic properties, consult with the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer (SHPO/THPO). Under NEPA, any impacts to tribal, cultural, or other treaty resources must be discussed and mitigated. Section 106 of the NHPA requires that Federal agencies consider the effects of their actions on cultural resources, following regulation in 36 CFR 800.

Executive Order 13007, Indian Sacred Sites (May 24, 1996), requires federal land managing agencies to accommodate access to, and ceremonial use of, Indian sacred sites by Indian Religious practitioners, and to avoid adversely affecting the physical integrity, accessibility, or use of sacred sites. It is important to note that a sacred site may not meet the National Register criteria for a historic property and that, conversely, a historic property may not meet the criteria for a sacred site. We do note that BLM had requested assistance in identifying sacred sites affected by the proposed Project (at pg. C.2-78).

#### Recommendation:

 The FEIS should address Executive Order 13007, distinguish it from Section 106 of the NHPA, and discuss how the BLM will avoid adversely affecting the physical integrity, accessibility, or use of sacred sites, if they exist. F2-36

F2-37

#### C. The Cultural Resource Evaluation Has Occurred Without Required Governmentto-Government Consultation with the Quechan Tribe.

BLM has not engaged in government-to-government consultation with the Tribe regarding the impacts of this project on cultural resources. Nor has the Tribe received any of the reports that identify cultural resources within the Project Area. Thus, at this time, the Tribe's (and other stakeholders) ability to comment on the impacts to cultural resources is impaired by lack of information.

The NHPA requires ongoing consultation with interested Indian tribes throughout the identification and evaluation of cultural resources and the resolution of adverse effects. 36 C.F.R. § 800.3(f)(2); 800.4(4)(4)(8) 800.5(c)(2)(3ii); 800.6(6)(2), etc. Here, pursuant to the Draft Programmatic Agreement, all evaluation and resolution of effects will occur after the decision has been made. The Draft Programmatic Agreement fails to provide for the full level of tribal consultation required by 36 C.F.R. Part 800.

There are several federal laws that mandate ongoing consultation with Indian tribes where federally approved actions will affect tribal interests. See Executive Order 12875, Tribal Governance (Oct. 26, 1993) (the federal government must consult with Indian tribal governments on matters that significantly or uniquely affect tribal governments). Executive Order 12898, Environmental Justice (Feb. 11, 1994) (federal government must consult with tribal leaders on steps to ensure environmental justice requirements). Executive Order No. 13007, Sacred Sites (May 24, 1996) (federal government is obligated to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, avoid adversely impacting the physical integrity of sites, and facilitate the identification of sacred sites by tribes); Executive Order No. 13084, Consultation and Coordination with Indian Tribal Governments (May 14, 1998) (places burden on federal government to obtain timely and meaningful input from tribes on matters that significantly or uniquely affect tribal communities); Executive Order 13175, Consultation with Indian Tribal Governments (Nov. 6, 2000) (the federal government shall seek to establish regular and meaningful consultation with tribes in the development of federal policies affecting tribes).

The Tribe has identified certain statements in the DEIS that may be inaccurate and that would benefit from consultation with the Tribe. For example, pages C.2-110 and 111 contain a discussion of the Yuha Basin Discontiguous District. According to the Tribe, it is likely that the sites within the project area are directly related to those within the Yuha area. However, due to the lack of consultation or the provision of cultural reports or maps, it is not possible to provide additional meaningful comments on this topic at this time.

To date, BLM has failed to fulfill its obligation to consult on a government-togovernment basis with the Quechan Tribe. BLM must fulfill this obligation prior to issuance of NA1-7

the ROD. Also, the Draft PA should be amended to require ongoing consultation with the Tribe, and tribal monitoring, if the development process goes forward.

Consultation under state law may also be required pursuant to California Government Code § 65562.5, because the project land is currently designated as open space under Imperial County zoning. Section 65562.5 requires local governments to consult with tribes "for the purpose of developing treatment with appropriate dignity of the place, feature, or object in any corresponding management plan." This section suggests that consultation may be required when development is proposed to occur in open space lands containing cultural resources of significance to tribes.

NA1-7

## G. The Staff Assessment Fails to Comport With CEQA Provisions Addressing Disposition of Discovered Human Remains.

The project area is known to contain sites containing human cremations of potentially historic origin. The full extent of the cremation sites is not currently known to the Quechan Tribe due to the lack of consultation and lack of a cultural resource report. CEQA Guidelines Section 15.064.5(d) states that "when an initial study identifies the existence of, or the probable likelihood, of Native American human remains within the project, a lead agency shall work with the appropriate Native American Heritage Commission as provided in Public Resource Code 5097.98." Public Resource Code 5097.98 provides a process for identifying the most likely descendants of the remains and provides for inspections, consultations, and development of agreements with the most likely descendants for the appropriate treatment of the remains. It does not appear that the CEC or the applicant have compiled with these provisions. Due to the lack of consultation, the Quechan Tribe lacks sufficient information at this time to know whether its people are the most likely descendants of the discovered remains. Further investigation and consultation with affected tribes (including the Quechan) is required before approving any project impacting these sacred cremation sites.

NA1-14

The Project would have significant cultural impacts and could "wholly or partially destroy all archeological sites on the surface of the project area." SA/DEIS, p. C.3-102. The discussion of impacts to cultural resources is incomplete and inadequate. Assessment of the short and long term adverse impacts to cultural resources is "[10 [b]e [p]rovided." SA/DEIS, p. ES-15. The Project would have significant impacts on "a presently unknown subset of approximately 330 known prehistoric and historical surface archaeological resources and may have significant impacts . . . on an unknown number of buried archaeological deposits, many of which may be determined historically significant . . ."
SA/DEIS, p. C.3-1. The project would also have indirect cultural impacts, because the Flat-failed horned lizard ("FTHL") has cultural significance to the Tribe – it is "part of the Tribe's creation story" – but, as discussed below, FTHL would be adversely affected by the Project. Tribe Comments, p. 9. Indirect cultural impacts would also result from the Project's aesthetic impacts on culturally significant areas. Id. at 7.

As discussed more fully in Exhibit A to the Tribe Comments, BLM has failed to satisfy its obligations under section 106 of the National Historic Preservation Act ("NHPA"), 16 U.S.C. section 470(f). Tribe Comments, Exhibit A, at 1. This section of the NHPA requires agencies to take into account the impact of effects of their actions on historical resources "prior to the issuance of any license." 16 U.S.C. § 470(f). "Instead of completing this required process, BLM is opting to use a programmatic agreement to defer evaluation, mitigation, and treatment until after approval..." Tribe Comments, Exhibit A, at 2.

Here again the assessment of impacts and the formulation of mitigation measures is impermissibly deferred. CEC plans to "fulfill the bulk of its obligation[9] under CEQA" by conditioning approval on the applicant's compliance with a programmatic agreement whose contents are not disclosed. SA/DEIS, p. C.3-12. "[Flormal evaluations of some ethnographic resources and all archeological resources. ... will occur subsequent to [CEC/DEIM] decisions on the proposed action." SA/DEIS, p. C.2-106. Although "the ideal intensity of the geographic coverage in a project area of analysis would be 100%," here the "geographic coverage,... presently includes a... sample of 25% of the archaeological sites...." SA/DEIS, pp. C.3-57 through 58. Moreover, the applicant's studies have been repeatedly rejected, giving little confidence in the 25% sample that was used. DEIS/SA, p. C.3-58. Before committing to the permanent destruction of irreplaceable cultural resources for the sake of a temporary project, CEC and BLM must, at the very least, determine the nature and extent of the cultural heritage they are obligicating.

# A. NATIVE AMERICAN TRADITIONAL CULTURAL PROPERTIES

The DEIS did not disclose the significance of the area on and around the Project site to contemporary tribal members. The DEIS focused almost solely on archeological resources and failed to analyze traditional cultural properties, which are areas on and around the Project site that have 09-13

O6-7

importance to tribes and Native Americans today. The purpose of an EIS is to address any major federal action significantly affecting the quality of the human environment. The definition of "human environment," as defined in the NEPA regulations, "shall be interpreted comprehensively to include the natural and physical environments and the relationship of people with that environment." The properties of t

Section 101 of NEPA declares it is a matter of national policy to preserve important historic, cultural, and natural aspects of our national heritage. Policy direction in BLM Manual 8100, section 8110.05D, further provides that BLM should "[i]ncorporate cultural resource considerations into all aspects of planning and decision making."

The cultural resources section of the DEIS fails to acknowledge the traditional cultural properties in and around the proposed action. A 'traditional cultural property" is a property, a place, that is eligible for inclusion on the National Register of Historic Places because of its association with cultural practices and beliefs that are (1) rooted in the history of a community, and (2) are important to maintaining the continuity of that community's traditional beliefs and practices.<sup>36</sup>

The project area is within the ancestral use area of the Quechan Tribe and other Native Americans.<sup>37</sup> Tribal members and other Native Americans have described significant non-archeological cultural resources within the Project boundaries and surrounding the Project. These cultural resources include biological resources on the Project site that are sacred to local tribes and the impacts of the Project on sacred areas on or near the Coyote Mountains. The project may result in visual, audible, and atmospheric impacts to these sites.

These resources were not analyzed in the DEIS; in fact, the DEIS included no information about the direct, indirect or cumulative effects on potential traditional cultural properties. The BLM should conduct an ethnographic study and interviews with local Native Americans and tribal representatives to further refine the BLM's understanding of the importance of these potential traditional cultural properties. At a minimum, the scope of analysis in the DEIS must include areas where the Project would have direct, indirect and cumulative impacts on areas which could be directly impacted by views and sounds from the property. The BLM must study and disclose the

types of cultural properties that are located within the area that the Project will impact.

09-13

## E. THE DEIS FAILED TO ANALYZE POTENTIALLY SIGNIFICANT IMPACTS TO CULTURAL RESOURCES

The surveys for cultural resources have identified over 300 known prehistoric and historic surface archeological resources and an unknown number of buried archeological deposits. Known surface resources include human cremation sites, habitation sites, lithic scatters, trails, ceramic scatters, ground stone and ground features.

Tribal members and local Native Americans have described other nonarcheological cultural resources within the project boundaries including

biological resources on the Project site that are sacred to local tribes and the impacts of the Project on the viewshed of sacred areas on or near the Coyote Mountains. [10] The DEIS failed to analyze impacts to these cultural resources or to consult with Tribes early enough to ensure that these impacts could be considered in the DEIS. [102]

Under Section 106 of the National Historic Preservation Act, the BLM has responsibility to consult with tribes and other parties to ensure that these impacts are identified as early as possible. Consultation must provide Indian tribes a reasonable opportunity to identify concerns about historic properties, advise on the identification of historic properties, including those of traditional religious and cultural importance, articulate its views on the undertaking's effects on such properties, and participate in the resolution of such effects. (\*\*\*) CURE has submitted a comment letter to BLM on the Draft Programmatic Agreement explaining why the BLM's proposed process for identifying and mitigating impacts to cultural resources on the Project site violates the NHPA and NEPA, among other statutes. This letter and other letters with similar conclusions are attached.

The DEIS identified cultural resources and historic properties affected by the proposed undertaking in a improperly narrow area of potential effect ("APE") that failed to consider many potentially significant effects of the undertaking. The APE in the DEIS failed to include areas where the project may have visual, audible, or atmospheric effects on traditional, religious and cultural resources. The DEIS failed to identify an accurate area of potential area of Project effects on cultural resources and the BLM failed to consult with the Tribes early enough to gather information about cultural resources outside of the Project boundaries that may be impacted. The DEIS fails to provide an adequate or accurate analysis of potentially significant impacts to cultural resources on and adjacent to the site. The DEIS should be revised to take into account the non-archeological effects of the undertaking on irreplaceable cultural resources that were not analyzed in the DEIS.

09-33

32. I was unable to find discussion of visual resources analysis from the perspective of Native Americans for whom the lands are sucred. I know that this can be done because BLM considered visual resources issues when it evaluated and decided to deny the Plan of Operations for the proposed Glamis Imperial Mine. Even if sacred sites are not disclosed, and they should not be, It would seem that the public benefits form a better understanding and appreciation of Native American traditions and views of the lands on which their ancestor lived.

P11-19

Response: Government-to-government consultation is ongoing, and is summarized in Section 7.0, Native American Consultation. That consultation includes discussions of resources on a landscape level and potential visual effects to those resources. The Tribes participating in this consultation process have been informed that the IVS project will have an adverse effect on cultural resources. Efforts are being made to avoid all known habitation sites and human remains locations through project modifications and design refinements.

The ongoing government-to-government consultation has not yet identified specific traditional cultural properties (TCP) that are eligible for the National Register in the project area of potential effects (APE). In an effort to identify TCPs in the APE that are eligible for the National Register, if any, meetings, requests to interview tribal elders, and field visits continue.

## D.4.9.4 Identification of Cultural Resources

Comments: NA1-5, NA1-6, NA1-7, NA1-12, O4-6, O6-7, O9-6, O9-49, P7-1, and P7-5.

- II. Comments on Staff Assessment/Draft Environmental Impact Statement
  - A. <u>BLM/CEC Should Select the No-Action Alternative Given the Acknowledged</u> Impacts to Cultural Resources and Biological Resources.

This project is located in an area confirmed to have high cultural sensitivity. The DEIS, page C.2-65. Development of the preferred alternative would result in significant adverse effects on "a presently unknown subset of 328 known pre-historic and historical surface archaeological resources and may have significant adverse effects under CEQA on an unknown number of buried archaeological deposits." DEIS, at ES-24, see also page C.2-1. On page C.2-106, there is an acknowledgement that the project "may wholly or partially destroy all archaeological sites on the surface of the project area." See also page B.2-12 (acknowledging that construction of the project would lead to the whole and partial destruction of cultural resources). Yet, BLM and CEC are proceeding to make a decision on this project before completing required tribal consultation and evaluation of the significance of the resources.

The cultural significance of the project area was previously described in the discussion of the proposed Plaster City ACEC in the 1980 Draft California Desert Conservation Area Plan Alternatives and EIS. The proposed ACEC, which included the current project area, was described as having "8,320 acres of high sensitivity/significance and 26,680 acres of high to very high buried site potential that could be severely impacted. In addition, possibly 1,125 prehistoric sites and 2 National Register properties (including 8 linear miles of historically significant trails) also stand to be disturbed and/or destroyed." The cultural value of this landscape has been well known for years. The proposed solar project would significant winned this cultural landscape.

Given the substantial amount of ongoing and proposed solar development on disturbed lands near the project area, the Tribe does not believe that this location is appropriate for the short term (40-year) solar project proposed by the applicant. At minimum, BLM and CEC should complete the cultural identification, evaluation, and mitigation processes as required by NEPA and NIPA Section 106 before making their final decisions on this project. NA1-5

# B. The Analysis of Cultural Resource Impacts Is Incomplete and Based on Inadequate Data.

Under NEPA, BLM is obligated to take a "hard look" at the potential environmental consequences of the proposed project. Klamath-Siskiyou Wildlands Center v. Bureau of Land Management, 387 F. 3d 989 (6° Cir. 2004). BLM must ensure the scientific integrity of the discussions and analysis in its EIS. Native Ecosystems Council v. U.S. Forest Service, 418 F.3d 953 (9° Cir. 2005). A Draft EIS must be as complete as possible and must not ignore or exclude important analysis or factual information. See 40 C.F.R. § 1502.9(a) ("the draft statement must fulfill and satisfy to the fullest extent possible the requirements established for final statements in section 102(2)(C) of NEPA").

In this case, the analysis of cultural resource impacts is based on incomplete and unreliable identification efforts. The DEIS describes the inadequate effort made by the applicant to document the cultural resources affected by the project. Throughout the cultural resources affected by the project. Throughout the cultural resources information provided by the applicant about cultural resources in the project area. See DEIS, pages C.2-57 and 58 (noting that documentation by the applicant of approximately 43% of the archaeological sites in the project area was probably inadequate, and noting conclusion of third party consultant that extant documentation for the archaeological sites in the project area was inadequate for assessing either the historical significance of the resources or the effects that the proposed action would have on them). Although 432 cultural resource sites have been previously located in the project area, the inventory conducted for the DEIS definitively re-

located only two. DEIS, C.2-65. Overall, the survey effort identified 337 total cultural resources, which is far less than the 432 sites previously recorded. DEIS, C.2-85.

The inadequate identification of resources means that BLM and CEC cannot accurately evaluate the impact that this project will have on cultural resources. On page ES-15 of the DEIS, there is no summary of the short and long term adverse impacts to cultural resources. Instead, that discussion is "to be provided." The very same table on page ES-15 asserts there will be "no cumulative adverse impacts" to cultural resources and that the "level of significance after mitigation" will be "less than significant." It is not clear how BLM and CEC can determine the correct "level of significance" when the impact analysis has not yet been completed.

The DEIS states that the project would have "significant adverse effects" on a "presently unknown subset of approximately 328 known prehistoric and historical surface archaeological resources and . . . on an unknown number of buried archaeological deposits." ES-24. It is not apparent from the DEIS how many of the surface resources will actually be affected. The inadequate identification efforts make it impossible for the decisionmakers and interested public to reasonably evaluate the cultural significance of the area and the full extent of impacts that this project will cause to the cultural landscape. Marsh v. Oregon Natural Resources Council, 490 U.S. 360 (1989) (noting a primary purpose of NEPA is to foster both informed decision making and informed public participation). This also violates the obligation to make a good faith effort to identify cultural resources of concern to interested Indian tribes. See 36 C.F.R. § 800.4(b) (requiring agency to make reasonable and good faith effort to identify historic properties affected by undertaking).

There has been no evaluation of the eligibility of the cultural resources for listing on the National Register of Historic Places. This also makes it impossible to know the extent of impact that this project will have on the cultural landscape. As noted in the Tribe's May 4, 2010 letter commenting on the draft Programmatic Agreement (which is attached hereto as Exhibit A and incorporated in these comments by reference), the Tribe objects to BLM's proposal to defer all evaluation and mitigation development efforts until after the decision has been made on the right-of-way. Approving the right-of-way prior to evaluating the eligibility of the resources violates both NEPA and the NHPA. Both NEPA and the NHPA are intended to inform the decision-making process. Deferring evaluation of NHPA-eligibility until after the decision to permit the project has been made is inconsistent with these laws.

In addition to direct impacts to cultural sites in the project area, there will also be impacts to sites outside the project area due to visual and glare impacts. There are many culturally significant areas outside the project boundaries, as evidenced by the proposed Plaster City ACEC discussed above. The DEIS, page C.13-10, also notes the close proximity of culturally and historically significant areas. Several of the cultural sites and geoglyphs located in the Yuha area are ceremonial in nature and the presence of the Suncatchers will interfere with the use of these sites and ability to see from these sites to other landscapes nearby.

In sum, BLM and CEC must complete the cultural resource identification, consultation, and evaluation process before making a final decision on this Project.

NA1-6

# C. The Cultural Resource Evaluation Has Occurred Without Required Government-to-Government Consultation with the Quechan Tribe.

BLM has not engaged in government-to-government consultation with the Tribe regarding the impacts of this project on cultural resources. Nor has the Tribe received any of the reports that identify cultural resources within the Project Area. Thus, at this time, the Tribe's (and other stakeholders) ability to comment on the impacts to cultural resources is impaired by lack of information.

The NHPA requires ongoing consultation with interested Indian tribes throughout the identification and evaluation of cultural resources and the resolution of adverse effects. 36 C.F.R. § 800.3(f)(2); 800.4(a)(4); 800.5(c)(2)(iii); 800.6(a); 800.6(b)(2), etc. Here, pursuant to the Draft Programmatic Agreement, all evaluation and resolution of effects will occur after the decision has been made. The Draft Programmatic Agreement fails to provide for the full level of tribal consultation required by 36 C.F.R. Part 800.

There are several federal laws that mandate ongoing consultation with Indian tribes where federally approved actions will affect tribal interests. See Executive Order 12875, Tribal Governance (Oct. 26, 1993) (the federal government must consult with Indian tribal governments on matters that significantly or uniquely affect tribal governments); Executive Order 12898, Environmental Justice (Feb. 11, 1994) (federal government must consult with tribal leaders on steps to ensure environmental justice requirements); Executive Order No. 13007, Sacred Sites (May 24, 1996) (federal government is obligated to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, avoid adversely impacting the physical integrity of sites, and facilitate the identification of sacred sites by tribes); Executive Order No. 13084, Consultation and Coordination with Indian Tribal Governments (May 14, 1998) (places burden on federal government to obtain timely and meaningful input from tribes on matters that significantly or uniquely affect tribal communities); Executive Order 13175, Consultation with Indian Tribal Governments (Nov. 6, 2000) (the federal governments All seek to establish regular and meaningful consultation with tribes in the development of federal policies affecting tribes).

The Tribe has identified certain statements in the DEIS that may be inaccurate and that would benefit from consultation with the Tribe. For example, pages C.2-110 and 111 contain a discussion of the Yuha Basin Discontiguous District. According to the Tribe, it is likely that the sites within the project area are directly related to those within the Yuha area. However, due to the lack of consultation or the provision of cultural reports or maps, it is not possible to provide additional meaningful comments on this topic at this time.

To date, BLM has failed to fulfill its obligation to consult on a government-togovernment basis with the Quechan Tribe. BLM must fulfill this obligation prior to issuance of

the ROD. Also, the Draft PA should be amended to require ongoing consultation with the Tribe, and tribal monitoring, if the development process goes forward.

Consultation under state law may also be required pursuant to California Government Code § 65562.5, because the project land is currently designated as open space under Imperial County zoning. Section 65562.5 requires local governments to consult with tribes "for the purpose of developing treatment with appropriate dignity of the place, feature, or object in any corresponding management plan." This section suggests that consultation may be required when development is proposed to occur in open space lands containing cultural resources of significance to tribes.

NA1-7

E. The DEIS Relies On A Programmatic Agreement That Fails to Provide Mitigation for Cultural Resources and That Fails to Comply With the Requirements of the National Historic Preservation Act and the Advisory Council Regulations.

The DEIS proposes one condition of certification relating to cultural resource protection, which would require the applicant to abide by the terms of a not-yet-completed programmatic agreement. The Tribe has filed a separate comment letter, dated May 4, 2010, which details how the use of a programmatic agreement in this proceeding is inappropriate. The Tribe's letter (which is attached hereto as <a href="Exhibit A">Exhibit A</a> and incorporated in these comments by reference) argues that BLM is improperly deferring the required Section 106 process until after its decision on the right-of-way is made, and that the current draft of the programmatic agreement fails to provide sufficient mitigation. The draft programmatic agreement, page 3, states that BLM will incorporate the mitigation measures and performance standards from the Staff Assessment/Draft EIS. The only "mitigation" for cultural resources provided in the Draft EIS is a reference back to the programmatic agreement. In other words, the programmatic agreement and DEIS simply cross-reference each other, but neither document provides for mitigation.

NA1-12

Caltural Resources: The BLM and CFG must fully consider the comments submitted by the National Park Service (see National Park Service comments dated May 4, 2010 on the Proposed Imperial Valley Solar Project Draft EIS) and comments that are submitted by local stakeholders regarding important cultural resources in the project vicinity and the impacts to these resources must be fully analyzed and mitigated.

The Project would have significant cultural impacts and could "wholly or partially destroy all archeological sites on the surface of the project area." SA/DEIS, p. C.3-102. The discussion of impacts to cultural resources is incomplete and inadequate. Assessment of the short and long term adverse impacts to cultural resources is "[10 [b]e [p]provided." SA/DEIS, p. ES-15. The Project would have significant impacts on "a presently unknown subset of approximately 330 known prehistoric and historical surface archaeological resources and may have significant impacts... on an unknown number of buried archaeological deposits, many of which may be determined historically significant...."
SA/DEIS, p. C.3-1. The project would also have indirect cultural impacts, because the Flat-tailorned lizard ("FTHL") has cultural significance to the Tribe — it is "part of the Tribe's creation story"—but, as discussed below, FTHL would be adversely affected by the Project. Tribe Comments, p. 9. Indirect cultural impacts would also result from the Project's aesthetic impacts on culturally significant areas. Id. at.7.

As discussed more fully in Exhibit A to the Tribe Comments, BLM has failed to satisfy its obligations under section 106 of the National Historic Preservation Act ("NHPA"), 16 U.S.C. section 470(f). Tribe Comments, Exhibit A, at 1. This section of the NHPA requires agencies to take into account the impact of effects of their actions on historical resources "prior to the issuance of any license." 16 U.S.C. § 470(f). "Instead of completing this required process, BLM is opting to use a programmatic agreement to defer evaluation, mitigation, and treatment until after approval. . . "Tribe Comments Exhibit A. at 2.

O6-7

Here again the assessment of impacts and the formulation of mitigation measures is impermissibly deferred. CEC plans to "fulfill the bulk of its obligation[s] under CEQA" by conditioning approval on the applicant's compliance with a programmatic agreement whose contents are not disclosed. SA/DEIS, p. C.3-12. "[F]ormal evaluations of some ethnographic resources and all archeological resources . . . will occur subsequent to [CEC/BLM] decisions on the proposed action." SA/DEIS, p. C.2-106. Although "the ideal intensity of the geographic coverage in a project area of analysis would be 100%," here the "geographic coverage . . . presently includes a . . . sample of 25% of the archaeological sites . . . " SA/DEIS, pp. C.3-57 through 58. Moreover, the applicant's studies have been repeatedly rejected, giving little confidence in the 25% sample that was used. DEIS/SA, p. C.3-58. Before committing to the permanent destruction of irreplaceable cultural resources for the sake of a temporary project, CEC and BLM must, at the very least, determine the nature and extent of the cultural heritage they are obliterating.

Finally, the Project will adversely affect hundreds of cultural resources including ancient cremation zones, trails and village sites, and will directly block one of the most undisturbed sections of the Juan Bautista de Anza

09-6

National Historic Trail, the first overland route from New Spain to San Francisco. The DEIS failed to provide ANY mitigation for impacts to cultural resources and instead explained that a future consultation process would work out the details of a mitigation proposal.

# G. THE DEIS FAILS TO MITIGATE IMPACTS TO SIGNIFICANT CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act directs federal agencies to take into account the effects of their actions on historic properties PRIOR TO the issuance of any license. The DEIS informs the public that ALL mitigation will be included in a Programmatic Agreement (\*PA\*) that is to developed in consultation with the Advisory Council, the State Historic Preservation Officer and other consulting parties. The Draft PA that was circulated to the consulting parties rather explicitly provides for the mitigation of effects of the Project on cultural resources to be taken into account -- to the extent they will be -- AFTER issuance of a license for the Imperial Valley Solar Project.

While the Advisory Council's regulations for carrying out consultation pursuant to Section 106 allow for "conducting or authorizing nondestructive project planning activities before completing compliance with section 106," <sup>137</sup> this may only occur if no decisions are made that would "restrict the subsequent consideration of alternatives to avoid, minimize, or mitigate the undertaking's adverse effects on historic properties." <sup>138</sup> This PA would permit BLM to authorize far more than "nondestructive project planning activities;" the PA would allow the BLM to adopt an alternative and authorize Project development, thus restricting the consideration of all other alternatives.

The BLM may not move forward with the project prior to taking into account the adverse effects of the project on the cultural resources through the consultation process. To date, the consulting parties have not had any chance at all to develop mitigation for cultural resource impacts, the DEIS fails to propose any mitigation that is reasonably likely to mitigate the project's impacts.

My name is Brendan Hughes and I would like to comment on the Tessera-Solar Two project in Imperial County. Contrary to the CEC staff's assessment, this project has unmittigable impacts on biological, cultural, and visual resources, and therefore should not be approved.

Also, cultural resources would be damaged or destroyed by this project.

Numerous sites that are sacred to local Indian tribes have been discovered in the project area, including trails and

cremation sites.

These sites will be permanently altered by this project. Additionally, the project will restrict access to the sites not

I ness sites will be parmanently aftered by this project. Additionally, the project will restrict access to the sites not destroyed by the 30,000 proposed Sun Calchers.

Response: As part of a good faith and reasonable effort to identify historic properties in the project APE, the BLM has required the preparation of a Class III Inventory. This report was provided to interested Tribes for comment. Based on the consultation process and comments

from Tribes and other interested parties, the BLM will make determinations of eligibility and effect for individual resources. On an undertaking wide context, the BLM has determined that the IVS project will have an adverse effect on historic properties and mitigation is required prior to construction. Preliminary mitigation measures are described in the FEIS, and in the draft Programmatic Agreement (PA) provided in Appendix G, Draft Programmatic Agreement, in the FEIS.

# D.4.9.5 Juan Batista de Anza National Historic Trail and the Yuha Geoglyphs

Comments: F1-1, F1-3, F1-4, F1-5, F1-6, F1-7, F1-8, F1-10, F1-11, F1-14, F1-16, O2-8, O4-10, O5-1, O5-2, O5-3, O6-3, O7-5, O9-51, P5-1, P12-3, P12-4, and P12-5.

The National Park Service (NPS) respectfully submits the following comments regarding the Draft Environmental Impact Statement (EIS) prepared for the Imperial Valley Solar Project (aka SES Solar Two Project) in Imperial County, California. Our comments primarily address potential impacts to, and mitigation for, the Juan Bautista de Anza National Historic Trail (Anza NHT), due to NPS's responsibility to administer, preserve and enhance this component of the National Trails System. With the exception of the concerns discussed below, we feel that the Draft EIS adequately discloses the project's impacts to the Anza NHT. However, we are concerned that the document does not adequately specify the mitigation needed to offset the project's impacts to the Anza NHT.

F1-1

To summarize our concerns regarding the Imperial Valley Solar project, the Yuha Desert is one of the least disturbed landscapes along the entire 1,200 mile length of the Anza NHT. This setting would be irrevocably changed by the proposed project. Because the project would have significant direct and indirect impacts to the Anza NHT, the NPS would prefer that the project not proceed, or that alternatives be considered which avoid impacts to the Anza NHT, However, should the project be approved, NPS requests that its impacts be mitigated to the greatest extent feasible. We recommend that the final EIS incorporate a comprehensive

F1-3

approach to mitigating impacts to the Anza NHT, through the preparation of a comprehensive Interpretive Plan and a re-evaluation of the alignment of the Anza Recreational Trail in the area.

F1-3

At the end of this memo, we identify a suite of mitigation measures that could be implemented to offset the projects impacts to the Anza NHT. We would like to work with you in reviewing each of these measures and determining jointly which measures will be required of the applicant should this project be approved. We make this request as a sister agency within the Department, as a Cooperating Agency for the EIS, and as an Invited Signatory to the Section 106 Programmatic Agreement.

## Comments on the Draft EIS

The following comments focus on specific sections of the EIS most relevant to impacts to the Anza NHT

## B.2 - Alternatives

Alterations to the project design as proposed by the Build Alternatives (300 MW Alternative, and Drainage Avoidance Alternatives #1 and #2) would not significantly lessen impacts to the Anza NHT due to the scale and visual impacts of the project. Also, because the historic corridor through the project site is an inferred alignment based on historic journals and maps (between the two historic campsile locations), reducing the project size or shifting its boundaries would not necessarily avoid direct impacts to the historic corridor traveled by the expedition. Furthermore, as noted in the EIS, approval of a project alternative could still ease the approval of other projects in the vicinity, resulting in cumulative impacts to the Anza NHT. This would be facilitated through the installation of infrastructure that would support additional energy generation facilities, changing the land use of the area to one of energy generation, and by degrading the existing landscape such that future projects would be considered a less dramatic change or impact to the environment.

F1-5

NPS prefers alternatives that would locate the project within or adjacent to existing disturbed lands, either in Imperial County, or closer to metropolitan areas that would consume the energy generated by the project. The ments of such alternatives need to be fully examined in the final EIS. Locating the proposed project on or near existing agricultural or urbanized areas in the vicinity would avoid or minimize impacts to the natural landscape. The Mesquite Lake and Agricultural Lands Alternatives for this project, evaluated under CEOA, would meet some of these enteria and avoid impacts to the historic corridor of the Anza NHT. It should also be noted that the Mesquite Lake and South of Highway 98 Alternatives would be located adjacent to the Auto Tour Route of the Anza NHT (Highways 98 and 86), but these Alternative locations would preferable to the proposed project site.

F1-6

## B.3 - Cumulative Scenario

Section B.3, Cumulative Scenario, identifies many other past, present, or future projects that could impact the Anza NHT, and the California desert as a whole. Several of the wind projects identified in the EIS, proposed west of the site near Occillo, would be visible from the Anza NHT (Wind Zero, Ocolillo Express, TelStar Energies). The analysis does not identify projects underway or anticipated in Arizona near the Anza NHT alignment that could add to cumulative impacts (i.e. cultural, visual, noise, recreational) and further degrade the integrity of the trail. As a result, the cumulative impact analysis needs to be expanded in the final EIS to include such projects and specifically address cumulative impacts to the Anza NHT corridor.

F1-7

Nonetheless, the cumulative analysis makes clear that the implementation of this and other energy projects would result in significant impacts to many environmental resources in the

California desert and elsewhere in the west. The result will be profound changes to the visitor's experience in these areas. NPS is very concerned about the implications of these long term changes. To ensure that projects are sited in appropriate locations using appropriate technologies to avoid impacts to our nation's natural and cultural heritage, it is imperative that landscape level analyses be conducted to fully evaluate the implications of the widespread deployment of renewable energy projects, and their associated support facilities, on the public lands. We recommend that the final EIS include a section discussing this aspect of cumulative impacts and efforts underway by the Bureau to address landscape level concerns.

F1-7

## C.3 - Cultural Resources

The Cultural Resources section adequately identifies the Anza expedition's place in history and discusses its relationship to the site. The document correctly recognizes the Anza NHT is a cultural resource of national significance, and that the impacts to the trail's integrity must be considered, including the visual impacts of the project on the historic trail corridor. The Draft EIS states:

The Juan Bautista de Anza National Historic Trail is a cultural resource of national significance for its association with important events in our history and its sascotations with important persons in our early history, as well as for its information potential. Staff believes that the associative values of the resource require Federal and State agencies to more broadly consider the degree of integrity the resource must have in order to convey its significance. This means that, in addition to considering how the proposed action would affect the physical integrity of the spatial relationships among any material remains of the use of the trail, the agencies need to consider whether and how the action would visually degrade the integrity of the setting, feeling, and association of the resource, formal aspects of integrity under both the NRHP and CRHR programs. [Draft Els D. C.-132)

On page C.2-146, the EIS concludes that Condition of Certification CUL-1 would reduce all cultural resource impacts to less than significant. CUL-1 requires compliance with the terms of the Programmatic Agreement (PA) being prepared by BLM pursuant to Section 106 of the National Historic Preservation Act. NPS is an Invited Signatory to the PA, which is still under development and does not yet specify mitigation for the Anza NHT. The only provision for mitigation in the draft PA released March 26, 2010 (for review by consulting parties) states: "In consultation with NPS and BLM's National Trail Office, provide a plan for treating effects to the Juan Baulitst de Anza National Historic Trail corridor."

NPS does not believe that the impacts to the Anza NHT can be reduced to a less than significant level through mitigation. Implementation of this project will forever change the landscape of this area and irreparably degrade the integrity of the Anza NHT and it will diminish the public's experience and understanding of the historic expedition and the cultural landscape of that period. Potential mitigation measures that should be included in the PA's treatment plan to reduce the project's impacts to the Anza NHT are listed beginning on page 8 below.

NPS requests that this significant impact to the Anza NHT be identified in the Final EIS and that appropriate mitigation be provided. At a minimum, NPS recommends that the alignment of the Anza Recreational Trail in the vicinity of the project be re-evaluated re-routed away from the project site to avoid impacts to the recreational users. Refer to the end of this letter for a more detailed discussion of suggested mitigation to address this impact.

. . . . . .

F1-8

## C.9 - Noise and Vibration

The Draft EIS states that the primary noise sources would consist of the reciprocating Stirling Engines (including generator, cooling fan and air compressor) utilized on each of the 30,000 Sun Catchers that make up the project. Because each individual Stirling Engine would be a primary noise source, similar noise levels would be generated throughout the entire project site, and the combined noise level would be significantly high in the immediate vicinity.

The analysis does not clearly describe the noise levels on or adjacent to the project site. It only states that 'based on the model estimates, operational noise levels within the Project boundary smould be similar in magnitude to comparably sized large industrial projects. Noise levels within the Project site were modeled to be below 85 dBA within 10 feet of the substation and amongst several SunCatcher assemblies... 'which is under the exposure limit for industrial workers. Table A2, Typical Environmental and Industrial Sound Levels, indicates that 85dBA is equivalent to the noise level experienced 50 feet from a freight train.

The EIS does quantify noise levels at distant sensitive receptors (residential uses) located 0.6 mile or more away from the site boundaries, but does not predict noise levels at or adjacent to the site, or from the Anza NHT. Table 8 indicates a 1 dBA increase in noise expected at the closest residences (Painted George, 3.300 feet northwest of the site). However, his appears to contradict page 5 1:2-20 of the Application for Certification, which says "the calculated increase of ambient sound level, generated by Project operation, is calculated to be +4 dB at the closest of two aforementioned sensitive receptors."

F1-11

The Solar Energy Programmatic EIS being prepared by the Departments of Energy & Interior for solar projects in the Western U.S. identifies the noise impacts from solar dish engine technologies as more significant than other solar energy technologies. It suggests that a solar dish engine facility such as the proposed project should be sited in locations with higher background noises; for example, such as close to a well-traveled highway where the ambient sounds partially mask the noise from the facility. Those portions of the project site closest to the freeway and the Plaster City Gypsum plant may blend in better with ambient noise environment, but the more distant portions of the 6,500 acre site would experience a significant increase in noise levels.

This high noise level, more common to industrial facilities, is not what recreational visitors expect when traveling to the desert, where the natural soundscape is very quiet. The final EIS should clearly disclose the increase in noise levels that would be generated by the project and experienced adjacent to the site. The final EIS also needs to evaluate the increase in noise levels that would be experienced by persons traveling on segments on the Anza Recreational Trail adjacent to the site boundaries. The noise impacts to the Anza Recreational Trail may

suggest that trail alignment be re-routed further away from site, such as west toward Occililo, rather than using Dunaway Road and Evan Hughes Highway to connect the southerly trail segment to the segment north of Plaster City.

In order to adequately disclose the project's noise impacts, the NPS recommends that the following additional information be provided in the final EIS:

- Noise contour maps should be provided documenting ambient and with project noise levels. We expect that these maps would visually demonstrate a significant increase in noise around the project site. The maps would show how the noise from the facility would compare to the primary existing noise sources in the area: the I-8 freeway and the Plaster City gypsum plant.
- Existing ambient sound levels and projected solar project noise levels at specific points along the Anza Recreational Trail in the project vicinity. Some of the same sites used for the Anza NHT visual impact analysis could be used, in addition to locations adjacent to the project site along Dunaway Road and Evan Hughes Highway.

The NPS also requests that additional noise mitigation measures be identified and required should this project be approved. Due to the magnitude of noise from tens of thousands of Stiring dish engines, a combination of noise mitigation measures is probably warranted. Noise control solutions which can be applied to each Stirling engine are desirable, because reduction of Stirling engine noise can translate into a reduction in project noise levels everywhere. Other noise reduction measures that should be considered include siting of noise sources and receivers, such as the Arza Recreational Trail, to take advantage of noise attenuation provided by topography and distance. In addition, construction of engineered sound barriers and/or berms has the potential to reduce some project noise at specific locations.

F1-11

At the request of NPS, the applicant prepared a visual impact analysis for the Anza NHT, dated January 21, 2010. Its findings are summarized on pages C. 13-18 and 19. The analysis concludes that visual impacts to the Anza Recreational Trail would be significant and that no feasible mitigation exists to eliminate or substantially reduce the visual impacts. Condition of Certification/Mitigation Measure VIS-5 is proposed to mitigate impacts to the Anza NHT:

VIS-5: In order to off-set unavoidable adverse impacts to visitors on the Anza Trail and Yuha Desert ACEC, the project owner shall contribute funds to the National Park Service (NPS) and BLM, specifically to provide improvements to benefit visitors on the Anza Trail. Such improvements could include, but not be limited to, interpretive displays or exhibits, improvements to use areas, mounted telescopes, or other improvements to be determined by the NPS and BLM.

Verification: The project owner shall coordinate closely with the BLM and, NPS, and contribute funds to mitigate for visual impacts to recreational users of the Anza Trail. The funds will be used by the agencies to improve the recreational experience for Anza Trail visitors through such means as interpretive signage, improvements to camping facilities, provision of view scopes at campsites or vista points, or other measures as appropriate. The amount and payment of funds will be determined by the two agencies commensurate with the loss scenic integrity of the Anza Trail experience. The project owner shall provide funds to the two agencies as approved by the Compliance Project Manager (CPM) within 180 days of the start of construction, and specify that the funds would be used for the area affected by the SES Solar Two Project. The project owner shall provide documentation to the CPM that the funds have been paid to the satisfaction of the BLM. (Draft Els.) p. C.13-45)

NPS concurs that funds should be provided by the applicant as mitigation to offset the project's visual impacts if earmarked for a wide range of improvements to the Anza NHT, as outlined in the mitigation section at the end of this letter. The key question and concern to the NPS is the amount of the mitigation fund. A guiding principle for determining the value of mitigation is that there must be a nexus to the impact, and it should be roughly proportional to the impact. Consistent with this, the EIS says "The amount and payment of funds will be determined by the wo agencies commensurate with the loss off scenic integrity of the Anza Trail experience. NPS has consulted internally and with BLM staff regarding how such a loss of scenic integrity would be valued. One method discussed with BLM would be to determine the cost of purchasing a conservation easement to protect a viewshed equivalent in scale to the area degraded by the project. An appraisal by a land trust or other conservation organization experienced with conservation easements might provide a reasonable valuation. Another

possible methodology would utilize surveys and focus groups to quantify the long term loss in value to visitors of the area. This is similar to the approach used for damage assessments to quantify the value of deliberate or accidental destruction of natural resources. NPS would like to work with the Bureau and the applicant to determine the appropriate methodology for quantifying the value of the mitigation fund.

F1-14

F1-14

## Mitigation Proposed by NPS

The following is a suite of potential mitigation measures proposed by NPS to offset the project's various impacts to the integrity of the Azas NHT if indeed this project is authorized. Implementation of these mitigation measures would provide enhancements to the Anza NHT in the vicinity of the project site through improved interpretation and recreation resources. We recommend that the final mitigation measures be identified through a comprehensive interpretive Plan for the area. NPS has had preliminary discussions with BLM staff regarding these proposed mitigation measures. Should this project be approved, the NPS realizes that more in-depth discussions with the Bureau and the project applicant are needed before

F1-16

Interpretive Plan for Anza NHT within El Centro Field Office Territory
We recommend that the NPS (or BLM in consultation with NPS) prepare an Interpretive Plan for
the Anza NHT in western Imperial and San Diego Counties. The plan would identify the existing
interpretive sites in the area and make specific recommendations for expanding the

interpretation of the Anza Trail in the area. The mitigation measures below are some specific ideas that might be included in the plan's recommendations.

## New Interpretive Facilities

Design, fabricate, and install new interpretive facilities throughout the area, including:

- 1. Installation of Yuha Well wayside exhibit. The BLM has designed an interpretive panel for Yuha Well, but doesn't have the resources to construct and install a permanent kiosk for the panel. Due to the significance of Yuha Well as a critical Anza campsite location, and the more modern historical resources that are extant at the site, installation of a permanent interpretive exhibit is a considered a top priority.
- Additional Interpretation at Anza Overlook. The Anza Overlook, located along the Anza Recreational Trail near Highway 98, contains a large stone monument and plaque placed by BLM in 1990. The site, which is also near a designated camping area and the Yuha Geoglyphs, affords spectacular views of the Yuha Desert. Additional interpretive exhibits at this location, or at the existing kiosk near the Highway 98 turnoff for the Overlook & Anza Recreational Trail (dirt road EC-274), would connect with many visitors to the area and provide more insight to the story of the Anza expedition.
- 3. Install Interpretive exhibit at Plaster City OHV Staging Area. The Plaster City OHV area is a busy off road vehicle area with over 20,000 vehicles per year. The Plaster City OHV staging area is located just west of Plaster City off Evan Hewes Highway. Installation of an interpretive facility at this location would connect with the many OHV visitors to the area and provide more insight to the story of the Anza expedition. The historic Anza expedition Campsite #48 is within the OHV area, and is identified as an interpretive site in the Anza NHT management plan.
- 4. Supplement exhibit at Sunbeam Rest Area on I-8. The Sunbeam Rest Area, located between Forrester & Drew Roads, six miles west of El Centro, was recently renovated by Caltrans. New interpretive panels at the rest area mention the Anza expedition in the context of other early Spanish explorers. The rest area also contains a State historic monument with misleading text that refers to the rest area as the site of Yuha Well. There may be an opportunity to provide supplemental information about the Anza Expedition at the rest area and to correct the record and reach the many visitors who use the facility.

## Museum Exhibit

Install an Anza-themed exhibit at a local museum. The recently constructed Imperial Valley College Desert Museum in the town of Ocotillo sits vacant due to the college's lack of funds to install exhibits and to staff the museum. The BLM-El Centro Field Office has a collection of Native American artifacts that need to be properly archived, and this museum was planned as a repository for the collection. Due to its proximity to the project site, the vacant museum building would be a good venue to provide interpretation of the Anza expedition in addition to the original subjects planned for the museum, archaeology and natural resources. The town of Ocotillo is the southwestern access point off Interstate 8 for the Anza-Borrego State Park and the Yuha Desert, and is a good location to connect with visitors and increase tourism to these areas. Additional subjects at the museum could include solar energy technology, the Jacumba Mountains Wilderness and Anza-Borrego State Park. An alternative museum for interpretation of the Anza NHT could be the Imperial Valley Pioneer Museum in Imperial, CA.

## Anza NHT Interpretive Brochure

Prepare an interpretive brochure specific to western Imperial and San Diego Counties which describes the Anza Trail and the expeditions' experience through the area.

## Increase Accessibility of BLM's Yuha Desert Cultural History Audio Tour

In 2010 the BLM completed an excellent audio tour of the Yuha Desert that interprets the Anza expedition and other cultural history. It discusses Yuha Well, the Anza Overlook, as well as the F1-16

nearby Geoglyphs. The audio tour is on the BLM website as a downloadable podcast (<a href="http://www.blm.gov/ca/ster/foelcentro/arch\_cu/l/vula\_pc\_htm">http://www.blm.gov/ca/ster/foelcentro/arch\_cu/l/vula\_pc\_htm</a>) and on CDs distributed from BLM's El Centro office in early 2010. The BLM's audio tour of the Yuha Desert could be made more accessible to visitors to the desert by implementing a phone-in tour or by broadcasting it via low-power radio. Visitors would be notified of the tour through signage at the interpretive sites. The audio bour could also be expanded to discuss other important resources or subjects in the area, such as San Sebastian Marsh, Native American tribes, and even modem uses of the desert, such as the solar project.

## Re-evaluate and Complete the Anza Recreational Trail

The Anza Recreational Trail currently extends south of the project site from 1-8 and Dunaway Road toward the Anza Overlook, and north of the project site from Plaster City along the U.S. Gypsum rail line. The Recreational Trail connecting these two points was intended to be routed immediately adjacent to the project site via the Dunaway Road 1-60 verpass. Due to the project's noise and visual impacts to the Anza Recreational Trail, the trail's existing and planned alignment in the vicinity of the site would need to be re-evaluated. An alternative alignment to more distant and/or shielded terrain should be implemented if it would substantially improve the recreational experience on the trail by minimizing Impacts from the proposed project and other cumulative impacts. If the relocated trail route were to cross private property, access easements would need to be obtained. The cost of acquiring such easements could be a mitigation measure required of the project applicant.

## Historic Campsite Surveys

Fund archaeological studies of the Anza Expedition campsites. The historic campsites #47 (Yuha Well) and #48 (north of Plaster City near Coyote Wash), are south and north of the project site, and have not had formal archaeological studies to identify historic artifacts left by the Anza expedition. It should be noted that previous archaeological studies of campsite #49 (San Sebastian Marsh) have identified Spanish artifacts. The trail's management plan calls for NPS to survey campsite locations and prepare record forms for listing on the National Register of Historic Places.

#### Trail-wide Mitigation Fund

Contribute a fee (amount to be determined) to a mitigation fund for trail-wide projects (in addition to those listed above, and not tied to immediate vicinity of project site), that the Superintendent of the Anza NHT would have discretion to allocate for high priority projects anywhere along the Anza NHT.

As stated above, the mitigation outlined above are conceptual in nature and are intended to facilitate discussions with the Bureau and project applicant. Should this project be approved, the final mitigation measures should be more carefully evaluated in the context of a comprehensive Interpretive Plan for the Anza NHT in area. Feel free to contact Naomi Torres, Superintendent for the Anza NHT (Naomi Iorres@nps.gov, 510-817-1438), or Steven Ross (steven ross@nps.gov, 510-817-1400) Outdoor Recreation Planner, to discuss this letter.

F1-16

As the DEIS recognizes, the Juan Bautista de Anza National Historic Trail "bisects the western portion of both proposed phases of the project site". DEIS at C.13-5. While the DEIS goes onto state that "the portion of the trail located within the project site is not marked or open for travel, as it is within the Yuha Desert ACEC". DEIS at C.13-5. This last statement is confusing at best and appears to be inaccurate. The map from the Juan Bautista de Anza National Historic Trail clearly shows the trail going through the project site. Additionally, BLM's own route designation maps from the Western Colorado Routes of Travel Designation Plan also show that route as an open route on the proposed project site. The designated route is also accessible by a number of other designated routes that currently occur on the proposed project site, yet the DEIS fails to analyze any alternative routes that might be adopted if these routes are blocked by the proposed project or the impact of such routes on rare species and other resources if the propose project moves forward.

02-8

Morcover, additional evaluation is needed to understand the cumulative impacts on recreational resources, specifically the Juan Bautista de Anza National Historic Trail, see National Park Service comments dated May 4, 2010 on the Proposed Imperial Valley Solar Project Draft ElS, pg. 3. A comprehensive cumulative impacts analysis including the evaluation of such information strengthens this document including associated mitigation measures and contributes to more informed decision-making.

**Q4-10** 

The Juan Bautista de Anza National Historic T (Anza NHT) is only one of nineteen National Historic Trails in the United States. It was established by an Act of Congress in 1990 to commemorate the 1775-1776 Anza Expedition. National Historic Trails are established to preserve our culture and heritage that is associated with the history of the trail. The Anza NHT constitutes a heritage corridor that depends its setting to create the visitor experience. The viewshed and the landscape are intertwined. with the story of the expedition. The Yuha Desert is one of the few remaining pristine sites along the entire 1200 mile Anza NHT that allows the visitor to connect the landscape with the culture and heritage of the expedition and to relive the expedition.

05

corridor. The visual impact will destroys the viewshed for miles. The constant noise will make it impossible for the visitor to envision the experience of expedition members. The destruction of the night sky will prevent the visitor to experience the setting.

It would be irresponsible and unconscionable to allow this industrial plant to be placed directly on top of the Anza NHT in one of the most significant areas along the trail between two important campsites of the expedition. There is simply no mitigation that could adequately and completely compensate for the loss to the Anza NHT and the public. The project should not be approved or should not be approved for this area. It should be required to be moved at least ten miles from this highly significant pristine area of the trail corridor. Industrial projects with such substantial and permanent impacts should be located in areas already disturbed. Offsite mitigation is unacceptable as compensation for a loss of this magnitude. Mitigation should include among other items, the rerouting of the trail, purchase of easements for that purpose, surveys of the entire EI Centro region to clearly identify and establish the trail route and to prevent other such industrial plants from being placed on the trail.

05-3

NEPA "is our basic national charter for protection of the environment." 40 C.F.R. § 1500.1(a). The purpose of NEPA is "to help public officials make decisions that are based on an understanding of environmental consequences, and take actions that protect, restore, and enhance the environment." Al. § 1500.1(c). NEPA's "procedures... insure that environmental information" of "high quality" is

O6-3

"available to public officials and citizens before decisions are made and before actions are taken." Id. § 1500.1(b). This is because "[a] courate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." Id. "[B] requiring agencies to take a 'hard look' at how the choices before them affect the environment, and then to place their data and conclusions before the public, NEPA relies upon democratic processes to ensure... that 'the most intelligent, optimally beneficial decision will ultimately be made." \*Oregon Natural Desert Ass'n v. Bureau of Land Mgmt., 531 F.3d 1114 (9th Cir. 2008) (internal citations omitted). CEQA is similarly intended to "[i] plorm governmental decision makers and the public about the potential, significant environmental effects of proposed activities." CEQA Guidelines [14 C.C.R.; 'Guidelines'] § 15002(a); No Oil, Inc. v. City of Los Angeles, 13 Cal. 36 8, 86 (194). The Guidelines emphasize that agencies "must use [their] best efforts to find out and disclose all that (they) reasonably can." Guidelines § 15144.

O6-3

In violation of these fundamental precepts, the SA/DEIS fails to include a number of critically interpretant studies whose inclusion is necessary for both the public and CEC/BLM to fully understand the environmental consequences of the Project. For example, many viewpoint simulations were omitted "due to fast-track time constraints," so the public has no idea of the actual visual impacts of the Project on the Juan Bautista de Anza National Historic Trail ("Anza NHT"). SA/DEIS, p. C.13-18. As discussed more fully in the following section, nearly every section of the SA/DEIS mentions an omitted study.

Because the SA/DEIS fails to include critical studies and information necessary to fully understand the impacts that the Project will have, it violates both CEQA and NEPA.

The area now provides scenic views while driving along Highway 8, in a historic area of the Anza Trail. If this historic route is to be maintained, the viewshed should not be compromised by large-scale developments.

O7-5

This historic value cannot be mitigated. We would much rather have a trail corridor with interpretive displays in this desert, than a scraped and industrialized projects.

07-

## A. JUAN BAUTISTA DE ANZA TRAIL CORRIDOR

The proposed Project wholly obstructs one of the most undisturbed portions of the Juan Bautista de Anza National Trail administered by the National Park Service. The National Park Service bluntly declared that they would prefer that the Project not be approved due to the severity of the Project's impacts on cultural resources, and in particular this National Trail. The DEIS recognizes that the Anza party most likely camped on the Project site during the first overland route between "New Spain" and San Francisco. There will be significant impacts to the National Trail and viewshed from the proposed Project. Furthermore, the access to this section of the trail will be completely eliminated and the camping and exploration along the section of the National Trail on the Project site will not be possible once the Project is constructed. This is a significant adverse impact that is completely unmitigated. The DEIS must study an alternative that eliminates SunCatcher units and Project infrastructure from the National Trail corridor designated by Congress.

09-51

Dear Jim.

I would like to comment on the proposed Stirling Energy Systems Solar Project.

I live and work near the Anza trall in Carpinteria, California.

I don't think the solar project should be built on the Anza trail corridor.

If it is built on the trial controls, mitigation should be required to minimize impacts to the right sky from lights and reflections. Miligation should also take the form of money to be paid to readily the recentionel Artus stall away from the noisy motors. Mitigation should also take the form of monetary payments to the National Park Service and to The Arza Trial Foundation to that they can improve the visitor-cerving amenities and interpretive facilities for the Arza Trial Foundation to that they can improve the visitor-cerving amenities and interpretive facilities for the Arza Trial Foundation to that they can improve the visitor-cerving amenities and interpretive facilities for the Arza Trial Foundation to that they can improve the visitor-cerving amenities and interpretive facilities for the Arza Trial Foundation to that they can improve the visitor-cerving amenities and interpretive facilities for the Arza Trial Foundation to the trial Foundation of the Arza Trial Foundation to the trial Foundation of the Arza Trial Foundation to the trial Foundation of the Arza Trial Foundation to the trial Foundation of the Arza Trial Foundation to the third trial Foundation of the Arza Trial Foundation to the Arza Trial Foundation to the third trial Foundation of the Arza Trial Foundation to the third trial Foundation of the Arza Trial Foundation the Arza Trial Foundation of the Arza

P5-1

Thank you for considering my comments as part of the public record.

Sincerely, Gregory Gandrud Carpinteria, CA

The cultural resources include indications of historic (and pre-historic) trails and paths, and signs of historic trails or routes. Since the Anza expedition utilized Native American guides, and since the trails on many of the segments of the Anza trail were also Native American trails that were used for many hundreds - if not thousands - of years, the final EIS should report on results from studies that use tools and techniques (in conjunction with the historic diaries and maps from the Anza expedition) to more accurately and precisely locate the historic route of the Anza trail within the NHT corridor. Trails that have been used over many years might be detected from soil compactness or via remote sensing techniques such as an examination of existing images from satellites possessing infrared (IR) filters. This might allow the trail's possible preservation while utilizing the surrounding areas for activities such as solar power production. This is my first suggestion on the DEIS and it relates to its Cultural Resources section. Specifically, the text at pages C.2-47, C.2-113, and C.2-132 should be edited to reflect a stronger commitment to identifying the trail beyond our understanding of it at the time of its Federal recognition (a decade ago). With this improved and refined knowledge, it should be preserved to the greatest extent possible. It is a reasonable mitigation to ask of the applicant, BLM and NPS to identify and preserve the route of the Anza expedition using the most modern tools, techniques and analysis currently available.

P12-3

The Cultural Resources section of the EIS and/or its appendices should also include the December 12th and 13th, 1775 diary entries of Father Pedro Font and Captain Juan Bautista de Anza, because they provide information about the cultural significance of the proposed site of the project and they help to locate the route of the expedition through it. Translations of these entries are published in print and on-line and can be obtained by consultation with the NPS JUBA NHT office in Oakland, CA.

P12-4

Anza expedition historic campsite #49 is the San Sebastian Marsh (near the Anza Borrego Desert State Park). It relates to the interpretation of the previously described historic campsites, because the 240 men, women and children of the 1775-1776 Anza expedition, together with over 1000 head of livestock, made it from Yuha Wells to San Sebastian without water in between. The trek was made across the lands of what is today the proposed solar

project. It was the most critical and dangerous segments of the 1,400 mile journey. In addition to these three campisties (47-49), there is also an Anza overlook marker/monument site (coordinates UTM: 602921 E, 3618052 N, Lat/Long: 32 degrees 41' 43.50" N, 115 degrees 54' 07.32" W). Though not officially on the NHT or corridor, it affords a unique overview and vantage point of the route of the Anza expedition looking approximately north. One should add that there are Native American geoglyphs quite near this site. Campsites 47-49 are visible from the monument. It is an easy-to-access recreational spot that is enjoyed near the driving and recreation route of the JUBA NHT.

With the above description and background in mind, I would like to bring to your attention the Visual Resources section of the DEIS. I refer to:

- CEC-700-2010-002-SA-DEIS Visual Resouces Fig. 2
- 2010-01-
- 22\_Juan\_Bautista\_de\_Anza\_National\_Historic\_Trail\_Visual\_Impact\_Analysis\_TN-55011-3
- 2010-04-28\_Applicant\_Glint\_and\_Glare\_Study\_TN-56457.

The Key Observation Points (KOPs) in the DEIS are different than in those in the other studies posted at the CEC web-site. The numbers are the same, but the locations are different in these three documents. In addition, there were errors in those studies that I pointed out to the applicant and the BLM that are being remedied and corrected for the sake of accuracy. The results of these studies should be captured and reiterated in the final EIS. Sone effort should be made in the final EIS to correctly identify those KOPs with significance to JUBA NHT-related sites. The document should employ a consistent KOP numbering system and/or employ a table that describes (with LatL/Long), the locations and significance of all the KOPs in the three documents. A map should be included that clearly identifies the current understanding of the route/corridor of the JUBA NHT, Anza campsite locations, JUBA NHT-related sites, together with the proposed project footprint, roads and all KOPs that have been studied to date. This should be updated as new KOPS are studied, For example, I strongly recommend that the Anza Monument and Overlook site mentioned above be studied as a KOP and reported on in the EIS with regard to Visual Resources and impacts.

Furthermore, the 2010-04-28 Applicant Glint and Glare Study states, "Glint may be visible to KOPs 1-6 and motorists, depending on time of day. KOPs facing northwest or west may experience glint during morning hours and KOPs facing east or northeast may experience glint during evening hours. Simulation review determined a 20-foot fence to be of minimal benefit..."

My experience as an optics design engineer suggests that only an experimental analysis of the project site using small test mirrors viewed from the vantage point of the JUBA NHT-related KOP sites can determine the extent of <u>cumulative</u> glint and glare from all SunCatchers\*\*\*

Section. I have strong concerns that the modeling for visual impact has taken into account a diffuse reflectance and object outline rather than the true specular nature of the dish mirror surface surface at the angles involved in the lines of sight at NHT-relevant KOPs. I also have serious concerns that a modeling study may not pick up all the subtle optical aspects that a more empirical approach would take. While the plots at the back of that study show the time of day and direction for the glint, the analysis does not represent the extent (and area) that the viewer will see from these sites. They do not address the solid angle for the effects. In other words, the vast expanse of desert that relates to the Anza NHT-related interpretation and recreation at these

P12-4

P12-5

sites will be filled with the glint and/or glare specified in the report, as well as the objects (e.g. trackers) themselves. Additional questions related to the JUBA NHT include:

- What is the solid angle involved (in steradians) at nearby Anza campsites and at the Anza overlook monument (coordinates given above) from the sum total of the SunCatchers? If it is discontinuous, describe this aspect and,
- What are the quantitative luminance estimates from the SunCatchers at these sites given the <u>cumulative and additive effects</u> of the planned number of SunCatchers at the proposed project site?

P12-5

Response: The Juan Batista de Anza National Historic Trail (Anza Trail) corridor is on and near the Imperial Solar (IVS) project site. Although a corridor (not a trail) for the Juan Bautista de Anza National Historic Trail (Anza Trail) is designated within the boundary of the IVS project site, that corridor alignment it is currently not marked on the project site with Trail signage. The public currently has access to the IVS project site via designated BLM roads.

As of June 2010, no physical evidence for the presence of the Anza Trail or campsite within the IVS project site has been observed. There is ongoing analysis of using remote sensing imagery to try to determine if the Anza Trail is on the IVS project site.

Visitors walking, hiking, or biking on the Anza Trail will hear noise associated with the construction and operation of the IVS project and the other Build Alternatives. However, because these trail users would be transient (traveling through the area) and are already exposed to noise sources such as traffic noise on Interstate 8 (I-8) and other nearby roads, the exposure to IVS project related noise is not expected to substantively affect their visitor experiences. In addition, because much of the inferred trail corridor alignment is this area is on local roads, drivers traveling on the trail would also be transient and would not be expected to be sensitive to noise associated with the construction and operation of the IVS project and the other Build Alternatives. In summary, because the trail visitors would be transient and would be exposed to the IVS project noise for only limited periods of time, the BLM does not believe that it is not necessary to conduct additional noise analysis or noise contour maps at the inferred alignment of the Anza Trail corridor in the project area.

The BLM has determined the IVS project and the other Build Alternatives will have an adverse effect on historic properties. Impacts to the Anza Trail corridor would be substantial. Measures to address project impacts to the Anza Trail are provided in Section 4.5, Cultural Resources, in the FEIS, and the draft Programmatic Agreement (PA) included as Appendix G in the FEIS.

Diary entries authored by Father Pedro Font and Captain Juan Bautista de Anza are included in Section 3.5, Cultural Resources in the FEIS.

Visual impacts to the Yuha Geoglyphs south of the IVS project site would be adverse. However, that impact would not be substantial due to the greater distance between that resource and the IVS project site. Project mitigation will require that all exterior lighting be designed so that lamps and reflectors are not visible from beyond the IVS project site boundary, lighting does not cause excessive reflected glare, direct lighting does not illuminate the nighttime sky except for required Federal Aviation Administration (FAA) aircraft safety lighting, and illumination of the IVS project site and the immediate vicinity is minimized.

## D.4.9.6 Mitigation and the Programmatic Agreement

Comments: F2-35, NA1-7, NA1-12, NA1-13, NA1-20, and O9-49.

## Cultural Resources and Coordination with Tribal Governments

Due to the extremely high frequency of identified cultural resources on or adjacent to the proposed Project site, the Project could have adverse effects on a presently unknown subset of approximately 328 known prehistoric and historical surface archaeological resources (at pg. ES-24). Impacts on an unknown number of buried archaeological deposits may also result, many of which may be determined historically significant (i.e., eligible for the National Register of Historical Resources) (at pg. C.2-1). According to the DEIS, BLM has initiated consultation under Section 106 of the National Historic Preservation Act (NHPA) (at pg. C.2-1). The DEIS indicates that CUL-1 would resolve effects under Section 106 of NHPA on known and newly found cultural resources (at pg. C.2-145).

#### Recommendations:

- Given the magnitude of potential impacts to cultural and historic resources, we
  recommend that the FEIS include a more detailed discussion of mitigation measures
  and design guidelines to avoid, minimize and compensate for adverse impacts. We
  recommend that these measures be adopted in the Record of Decision (ROD).
- Include in the FEIS the completed Section 106 Programmatic Agreement and mitigation plans. Alternatively, discuss the process and timeline for completing the Section 106 consultation process.

F2-35

## C. The Cultural Resource Evaluation Has Occurred Without Required Governmentto-Government Consultation with the Ouechan Tribe.

BLM has not engaged in government-to-government consultation with the Tribe regarding the impacts of this project on cultural resources. Nor has the Tribe received any of the reports that identify cultural resources within the Project Area. Thus, at this time, the Tribe's (and other stakeholders) ability to comment on the impacts to cultural resources is impaired by lack of information

The NHPA requires ongoing consultation with interested Indian tribes throughout the identification and evaluation of cultural resources and the resolution of adverse effects. 36 C.F.R. § 80.3(f)(2); 80.4(q)(4); 80.5(c)(2)(iii); 80.6(q)(2), etc. Here, pursuant to the Draft Programmatic Agreement, all evaluation and resolution of effects will occur after the decision has been made. The Draft Programmatic Agreement fails to provide for the full level of tribal consultation required by 36 C.F.R. Part 800.

There are several federal laws that mandate ongoing consultation with Indian tribes where federally approved actions will affect tribal interests. See Executive Order 12875, Tribal Governance (Oct. 26, 1993) (the federal government must consult with Indian tribal governments on matters that significantly or uniquely affect tribal governments); Executive Order 12898, Environmental Justice (Feb. 11, 1994) (federal government must consult with tribal leaders on steps to ensure environmental justice requirements). Executive Order No. 13007, Sacred Sites (May 24, 1996) (federal government is obligated to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, avoid adversely impacting the physical integrity of sites, and facilitate the identification of sacred sites by tribes); Executive Order No. 13084, Consultation and Coordination with Indian Tribal Governments (May 14, 1998) (places burden on federal government to obtain timely and meaningful input from tribes on matters that significantly or uniquely affect tribal communities); Executive Order 13175, Consultation with Indian Tribal Governments (Nov. 6, 2000) (the federal government shall seek to establish regular and meaningful consultation with Indian Tribal Government shall seek to establish regular and meaningful consultation with Indian Tribal Government shall seek to establish regular and meaningful consultation with Indian Tribal Government shall seek to establish regular and meaningful consultation with Indian Tribal Government shall seek to establish regular and meaningful consultation with Indian Tribal Government shall seek to establish regular and meaningful consultation with Indian Tribal Government shall seek to establish regular and meaningful consultation with Indian Tribal Government shall seek to establish regular and meaningful consultation with Indian Tribal Government shall seek to establish regular and meaningful consultation with Indian Tribal Government shall seek to establish regular and meaning

The Tribe has identified certain statements in the DEIS that may be inaccurate and that would benefit from consultation with the Tribe. For example, pages C.2-110 and 111 contain a discussion of the Yuha Basin Discontiguous District. According to the Tribe, it is likely that the sites within the project area are directly related to those within the Yuha area. However, due to the lack of consultation or the provision of cultural reports or maps, it is not possible to provide additional meanineful comments on this topic at this time.

To date, BLM has failed to fulfill its obligation to consult on a government-togovernment basis with the Quechan Tribe. BLM must fulfill this obligation prior to issuance of the ROD. Also, the Draft PA should be amended to require ongoing consultation with the Tribe, and tribal monitoring, if the development process goes forward.

Consultation under state law may also be required pursuant to California Government Code § 65562.5, because the project land is currently designated as open space under Imperial County zoning. Section 65562.5 requires local governments to consult with tribes "for the purpose of developing treatment with appropriate dignity of the place, feature, or object in any corresponding management plan." This section suggests that consultation may be required when development is proposed to occur in open space lands containing cultural resources of significance to tribes.

NA1-7

E. The DEIS Relies On A Programmatic Agreement That Fails to Provide Mitigation for Cultural Resources and That Fails to Comply With the Requirements of the National Historic Preservation Act and the Advisory Council Regulations.

The DEIS proposes one condition of certification relating to cultural resource protection, which would require the applicant to abide by the terms of a not-yet-completed programmatic agreement. The Tribe has filed a separate comment letter, dated May 4, 2010, which details how the use of a programmatic agreement in this proceeding is inappropriate. The Tribe's letter (which is attached hereto as <u>Exhibit A</u> and incorporated in these comments by reference) agues that BLM is improperly deferring the required Section 106 process until after its decision on the right-of-way is made, and that the current draft of the programmatic agreement fails to provide sufficient mitigation. The draft programmatic agreement, page 3, states that BLM will incorporate the mitigation measures and performance standards from the Staff Assessment/Draft EIS. The only "mitigation" for cultural resources provided in the Draft EIS is a reference back to the programmatic agreement. In other words, the programmatic agreement and DEIS simply cross-reference each other, but neither document provides for mitigation.

F. The Inadequate Cultural Resource Identification, Evaluation, and Mitigation Efforts Also Violate California Law.

CEQA requires development of appropriate mitigation measures. "Formulation of mitigation measures should not be deferred until some future time. However, measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way." CEQA Guidelines, § 15126.4(a). The DEIS fails to development appropriate mitigation measures relating to cultural resources. The only mitigation referenced is the Draft PA, which as discussed above, does not contain any actual mitigation measures or performance standards.

California law also favors the preservation of cultural resources in place and the avoidance of impacts to such resources. Appendix K to the CEQA Guidelines states that "public agencies should seek to avoid damaging effects on an archaeological resource whenever feasible." The commentary on Appendix K states that "an important principle in this appendix is the emphasis on avoidance of archaeological sites. . . where the proposed project includes a potential impact on a site, avoidance is suggested as a preferred mitigation measure where all other factors are equal." Here, hundreds of resources will be directly or indirectly impacted. Yet, the rush to issue certification and approve the right-of-way forecloses a meaningful opportunity to design the project in a way that will avoid resources or to consider whether an alternative location should be selected.

NA1-12

Re: Comments on Draft Programmatic Agreement regarding Tessera Solar Imperial Valley Solar Project (formerly Solar Two)

#### Dear Ms. Simmons:

The Quechan Indian Tribe submits the following comments on the Draft Programmatic Agreement Regarding the Tessera Solar - Imperial Valley Solar Project ("Draft PA"). Insummary, the Tribe believes that the Draft PA is inconsistent with the National Historic Preservation Act (NHPA) Section 106 process, and not adequate to evaluate and mitigate effects on cultural resources in and around the project area. The Draft PA defers a substantial majority of the Section 106 process, including all evaluation, treatment, and mitigation until after BLM has granted the right-of-way to the applicant. BLM has failed to adequately explain why a PA is necessary or appropriate here. The only apparent basis for deferring the evaluation of cultural resources, and development of an appropriate treatment plan, until after approval of the right-of-way is the artificial timeline imposed by the applicant.

## I. The Draft PA Is Inconsistent With Section 106 of the NHPA.

Section 106 of the National Historic Preservation Act, 16 U.S.C. § 470f, requires that BLM "shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register." (emphasis added). Only "nondestructive project planning activities may be completed before completing compliance with Section 106." 36 C.F.R. § 800.1(c). Similar to NEPA, the NHPA is designed to ensure that federal decision-makers thoroughly evaluate the impacts of their proposed actions on NHPA-eligible resources prior to

Prior to the approval of a federal undertaking, the federal agency must engage in a fourpart process. First, the agency must identify the "historic properties" within the area of potential effects. 36 C.F.R. § 800.4. Second, the agency must evaluate the potential effects that the undertaking may have on historic properties. 36 C.F.R. § 800.5. Third, the agency must resolve the adverse effects through development of mitigation measures. 36 C.F.R. § 800.6. Fourth,

throughout all of these processes, BLM must consult with interested Indian tribes that might attach religious and cultural significance to properties within the area of potential effects. 36 C.F.R. § 800.3(f)(2); 800.4(a)(4); 800.5(c)(2)(iii); 800.6(a); 800.6(b)(2), etc.

Instead of completing this required process, BLM is opting to use a programmatic agreement to defer evaluation, mitigation, and treatment until after approval of the right-of-way. 36 C.F.R. § 800.14(b) authorizes the Advisory Council and the agency to negotiate programmatic agreements to govern programs, complex project situations, or multiple undertakings. 36 C.F.R. § 800.14(b)(1) specifies the circumstances under which a programmatic agreement may be used. None of those circumstances exist in this case. Nor does the Draft PA identify any element of 36 C.F.R. § 800.14(b)(1) that justifies the use of a PA here.

There is no reasonable basis to depart from the standard Section 106 process. There is no valid reason why the effects on historic properties cannot be fully determined prior to approval of this undertaking. The only apparent reason why BLM is choosing to use a programmatic agreement is to allow the applicant to obtain its right-of-way approval before the end of the calendar year, in an effort to qualify for federal funding. See Draft PA, p. 5. Absent this arbitrary deadline being imposed by the applicant, there is no reason to believe that BLM could not complete the standard Section 106 process before it makes its decision on right-of-way issuance.

To the extent that the Advisory Council regulations authorize the deferral of the Section 106 process until after approval of the undertaking, those regulations are inconsistent with the plain language of 16 U.S.C. § 470f and invalid. The statute is clear that the agency must consider the effect of its undertaking on historic properties prior to approval. See Corridor H Alternatives, Inc., v. Slater, 166 F.3d 368 (D.C. Cir. 1999) (rejecting agency's use of PA to defer Section 106 process until after issuance of ROD); City of Alexandria v. Slater, 198 F.3d 862 (D.C. Cir. 1999) (approving PA where agency only deferred identification of sites that might be impacted by small number of ancillary activities, and distinguishing from case where the entire Section 106 process is deferred). While the Advisory Council has discretion to determine how the effects on historic properties are evaluated, it does not have authority to permit the approval of undertakings prior to the completion of that evaluation. Chevron v. Natural Resources
Defense Council, Inc., 467 U.S. 837 (1984) (ruling that the judiciary must reject administrative interpretations that are contravy to clear congressional intent).

In summary, this is not an appropriate case for use of a programmatic agreement. This case involves a straightforward proposal to issue a right-of-way on BLM lands for a single solar development project. There is no "program" at issue, no significant complexity, and no reason why the standard identification, evaluation, and resolution process cannot occur prior to approval of the undertaking. BLM must complete the cultural resource evaluation required by Section 106 prior to approving the right-of-way for this project.

 BLM Has Not Fulfilled Its Government-to-Government or Section 106 Tribal Consultation Obligations.

The NHPA and the Advisory Council regulations contain detailed requirements for consultation with Indian tribes who attach religious and/or cultural significance to historic properties that may be affected by an undertaking. See NHPA, Section 101(4)(6)(8). This

consultation obligation applies "regardless of the location of the historic property." 36 C.F.R. § 800.2(c)(2)(ii). "The agency official shall ensure that consultation in the section 106 process provides the Indian tribe... a reasonable opportunity to identify its concerns about historic properties, including those of religious and cultural importance, articulate its views on the undertaking's effects on such properties, and participate in the resolution of adverse effects." 36 C.F.R. § 800.2(c)(2)(iii)(A). "Consultation should commence early in the planning process, in order to identify and discuss relevant preservation issues and resolve concerns about the confidentiality of information on historic properties." 1d.

There are also several federal laws that mandate ongoing government-to-government consultation with Indian tribes where federally approved actions will affect tribal interests. See Executive Order 12875, Tribal Governance (Oct. 26, 1993) (the federal government must consult with Indian tribal governments on matters that significantly or uniquely affect tribal governments. Executive Order 12898, Environmental Justice (Feb. 11, 1994) (federal government must consult with tribal leaders on steps to ensure environmental justice requirements); Executive Order No. 13007, Sacred Sites (May 24, 1996) (federal government is obligated to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, avoid adversely impacting the physical integrity of sites, and facilitate the identification of sacred sites by tribes); Executive Order No. 13084, Consultation and Coordination with Indian Tribal Governments (May 14, 1998) (places burden on federal government to obtain timely and meaningful input from tribes on matters that significantly or uniquely affect tribal communities); Executive Order 13175, Consultation with Indian Tribal Governments (Nov. 6, 2000) (the federal government shall seek to establish regular and meaningful consultation with these in the development of federal policies affecting tribes).

NA1-20

The Advisory Council regulations make it clear that consultation with interested tribes is to occur throughout the entire Section 106 process. 36 C.F.R. § 800.4(a)(4) requires BLM to consult with interested tribes "oassist in identifying properties, including those off tribal lands, which may be of religious and cultural significance to them and may be eligible for the National Register." 36 C.F.R. § 800.6(a) requires BLM to consult with interested tribes when assessing adverse effects. 36 C.F.R. § 800.6(a) requires BLM to consult with interested tribes when developing and evaluating alternatives that could avoid, minimize, or mitigate adverse effects on historic properties.

Here, BLM has not compiled with the tribal consultation regulations. Since BLM is proposing to defer the identification, evaluation, and impact mitigation until after it approves the right-of-way, the Quechan Tribe and other tribes are being deprived of their ability to provide meaningful input prior to BLM's decision. In addition, the Tribe has not yet received a final cultural resources report for this project, further impairing its ability to consult.

The tribal consultation provisions in the Draft PA are also inconsistent with the Advisory Council regulations. Appendix A, Section I(d) of the Draft PA requires BLM to consult with tribes to identify traditional cultural places within the APE. However, this is narrower than the regulations' requirement to consult for the purpose of identifying properties, "which may be of religious and cultural significance." 36 C.F.R. § 800.4(a)(4). Likewise, Appendix A, Section II of the Draft PA requires consultation with tribes in the resource evaluation phase, but only for the purpose of determining whether or not a resource is NRHP-eligible. In contrast, the ACHP

regulations also require consultation with tribes in the assessment of effects to the properties. 36 C.F.R. § 800.5(a). The Draft PA does not provide for this phase of tribal consultation.

Appendix B of the Draft PA requires the applicant to develop a Treatment Plan in consultation only with BLM and other <u>signatories</u> to the PA. Thus, if the Tribe does not sign the PA, it loses its right to consult on the resolution of adverse effects required by 36 C.F.R. § 800.6(a). BLM can not condition tribal consultation on execution of a PA that the Tribe objects to. If the Tribe declines to sign the PA, BLM and the applicant must still comply with the tribal consultation provisions in 36 C.F.R. § 800.6(a) and consult with the Tribe in development and implementation of the Treatment Plan. This should be made clear in the PA.

In summary, BLM has failed to comply with its tribal consultation obligations. In addition, the Draft PA does not provide for the level of tribal consultation required by the Advisory Council regulations. At minimum, the Draft PA should be revised to provide for tribal consultation in a manner consistent with 36 C.F.R. Part 800. No work should be authorized until tribal consultation on the evaluation and resolution of effects is completes; is completed.

## III. Specific Comments on Draft PA

As noted above, the Tribe believes that use of a programmatic agreement in this case violates both the letter and spirit of the NHPA by deferring evaluation and resolution of effects until after approval of the undertaking. In addition, the programmatic agreement is worfully inadequate in terms of specifying appropriate mitigation measures. The following are specific comments on the Draft PA:

- The Draft PA, page 3, states that BLM will incorporate the mitigation measures and performance standards from the Staff Assessment/Draft EIS ("SA/DEIS") for the SES Solar Two Project. However, the only Condition of Certification contained in the SA/DEIS is that the applicant shall comply with the terms of the programmatic agreement. In other words, the Draft PA and SA/DEIS simply cross-reference each other, but neither document provides any substantive mitigation measures or performance standards.
- The Draft PA, page 6, states that BLM has determined that a "phased (diered) process for compliance with section 106 of the NHPA is appropriate for the undertaking." BLM fails to explain why a phased approach is appropriate in this case. Even if a phased approach was appropriate, there is no valid reason why BLM should not complete the Section 106 process for at least <a href="Phase">Phase</a> I of the Project prior to approval of the undertaking. BLM is not just deferring evaluation of effects for Phase II of this Project, but is deferring the entire Section 106 process for all phases until after approval of the undertaking. This is not consistent with NHPA requirements.
- The Draft PA, page 6, asserts that BLM has "comparatively examined the relative effects of the alternatives [in the SA/DEIS] on known historic properties." However, there has not actually been any evaluation of the identified historic properties to date. The DEIS simply assumes that effects on cultural resources can be adequately mitigated through the PA, but the Draft PA lacks any actual mitigation measures or performance standards.

- The Draft PA, page 7, contains a definition of "cultural resource," but then fails to use
  that definition consistently throughout the document. The term "cultural resource" as defined on
  page 7 should be incorporated throughout the substantive terms of the agreement.
- The area of potential effects (APE) is coterminous with the project boundary.
   However, there are many other sensitive areas adjacent to the project area. It may be appropriate to broaden the APE to consider the indirect effects that this project will have on the adjacent areas. Further consultation with the Tribe is necessary on this issue.

- Stipulation VI discusses the need to treat Native American burials and related items discovered during implementation of the Agreement in compliance with NAGPRA. The Tribe is aware that cremation sites have been located in the project area, yet the Tribe has not been consulted or provided with specific information about the nature or extent of these cremation sites. The Tribe is very concerned with a ROD being issued until full identification and evaluation of cremation sites in compliance with NHPA and NAGPRA takes place.
- Stipulation VIII, on page 10, states that BLM will ensure preparation and distribution of a report to consulting parties that documents the results of implementing the evaluation and treatment plan efforts referenced in Stipulations III and IV. This report will be circulated within 18 months after all fieldwork required by Stipulations III "or" IV is complete. This stipulation should be modified to require the preparation of two reports; one that addresses evaluation of resources and a second that addresses treatment. The first report, which would document evaluation efforts, should be subject to comments of consulting parties and other interested Indian tribes prior to preparation of a treatment plan. The evaluation report would help inform development of the treatment plan. There should be consultation throughout the evaluation process, and throughout the development and implementation of the treatment plan.
- Stipulation IX authorizes BLM to commence "construction activities such as grading, buildings, and installation of Sun Catchers" prior to completion of the evaluation of resources and the development and implementation of a treatment plan. The Tribe objects to this as inconsistent with the requirements of the NHPA. BLM should not authorize any construction until the evaluation of resources, and development of a treatment plan, occurs.

- Stipulation XI discusses dispute resolution in the event there is disagreement about how terms of the PA are being implemented. BLM's authority to revoke its right-of-way, or to impose additional conditions on the project for failure to comply with the PA, should be made clear in this section. If BLM proceeds with the PA, and defers the Section 106 process until after it issues the right-of-way, it must also retain the authority to revoke or condition the project in the event that the applicant violates the PA. The Draft PA does not contain clear language that ensures BLM will have authority to meaningfully enforce the terms of the Agreement.
- Stipulation XII discusses termination of the Agreement, but fails to clearly state that if the agreement is terminated, then the applicant must stop work on the project. Again, BLM is deferring the Section 106 process through the proposed agreement. Compliance with mitigation measures developed through the Section 106 process should be an express condition of the right-of-way approval. In other words, it should be clear both in the PA and in the ROD that termination of the PA, or other failure to comply with prescribed mitigation measures, means that work must stop pending full compliance with any unfulfilled obligations under the NHPA.
- Stipulation XIV is unclear. Section (a) states that the PA will expire if the undertaking or the Stipulations have not been performed within five years. "At such time," says the PA, the BLM shall either execute an MOA or request comments from the ACHP. Does this mean that the PA will change into an MOA at the end of the five year period? If the applicant fails to agree to the MOA, does this result in revocation of the right to continue with the undertaking? Section (b) then indicates that the undertaking may proceed even though the PA is terminated. This section should make it clear that, if the PA is terminated, all work must cease until the development of a new PA or MOA.

- Stipulation XV(b) states that execution and implementation of the PA is evidence that BLM has afforded the ACHP a reasonable opportunity to comment on the undertaking.
   However, even if this is true, implementation of the PA is not evidence that BLM has satisfied its consultation obligations to interested Indian tribes.
- Appendix A, Section I(b) states that an inventory report, containing 100% survey of
  the APE, has been submitted to BLM. The Tribe has not received a copy of that report from
  BLM, nor has it been consulted as to the contents of that report. This has limited the ability of
  the Tribe to effectively consult and comment in this process.
- Appendix A, Section I(d) states BLM shall consult with Tribes to identify traditional cutting places, but does not require this consultation to occur prior to issuance of the ROD. BLM is violating Section 106 and the Advisory Council regulations by failing to provide meaningful consultation with the Tribes prior to issuance of the ROD in this proceeding.
- Appendix A, Section II discusses evaluation of historic properties. The Tribe disagrees with the presumption in Section (e) that isolated artifacts may not be considered eligible under the NRHP. The Tribe also disagrees with Section (f), which states that cultural resources that can be "avoided" will not be evaluated. This is inconsistent with the NHPA and the Advisory Council Regulations. BLM must evaluate all of the identified cultural resources for NRHP eligibility. The mere fact that the project footprint will not directly damage a resource does not mean that a resource will not be affected by the development of the project. This is

especially true for resources that have cultural or religious significance to tribes, which can suffer impacts from the presence of adjacent commercial developments. Development activities may affect the cultural setting in which resources lie, even if the project does not directly impact them. Thus, all identified resources should be evaluated for NRHP eligibility. The Section 106 process is intended to inform BLM and the public of how sensitive a project area is. An analysis of how many eligible resources are located on the site should occur before any decision is made to permit the project.

• Appendix B states that the treatment plan will be developed among Signatory Parties. BLM cannot deprive the Tribe of its rights as a consulting party if the Tribe chooses not to be a signatory party. As discussed above, the regulations require consultation with the Tribe in the resolution of adverse effects, and the Draft PA should clarify that such consultation is required. No work should be authorized until resources are evaluated and the HPTP is completed.

NA1-20

In conclusion, the Tribe objects to the use of a programmatic agreement in this proceeding. The Section 106 process, and the evaluation of impacts to cultural resources is being arbitrarily rushed to the detriment of tribal input and protection of the resources. To the extent that a programmatic agreement is adopted, the current draft is inadequate and should be revised in accordance with the comments above. We look forward to continue working with BLM as this process continues. Please contact me if you have any questions.

# G. THE DEIS FAILS TO MITIGATE IMPACTS TO SIGNIFICANT CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act directs federal agencies to take into account the effects of their actions on historic properties PRIOR TO the issuance of any license. The DEIS informs the public that ALL mitigation will be included in a Programmatic Agreement ("PA") that is to developed in consultation with the Advisory Council, the State Historic Preservation Officer and other consulting parties. The Draft PA that was circulated to the consulting parties rather explicitly provides for the mitigation of effects of the Project on cultural resources to be taken into account -- to the extent they will be -- AFTER issuance of a license for the Imperial Valley Solar Project.

While the Advisory Council's regulations for carrying out consultation pursuant to Section 106 allow for "conducting or authorizing nondestructive project planning activities before completing compliance with section 106," 137 this may only occur if no decisions are made that would "restrict the subsequent consideration of alternatives to avoid, minimize, or mitigate the undertaking's adverse effects on historic properties." 138 This PA would permit BLM to authorize far more than "nondestructive project planning activities," the PA would allow the BLM to adopt an alternative and authorize Project development, thus restricting the consideration of all other alternatives.

The BLM may not move forward with the project prior to taking into account the adverse effects of the project on the cultural resources through the consultation process. To date, the consulting parties have not had any chance at all to develop mitigation for cultural resource impacts, the DEIS fails to propose any mitigation that is reasonably likely to mitigate the project's impacts.

Response: Preliminary mitigation measures are included in the FEIS, and will be adopted in the ROD. A draft PA is included in Appendix G in the FEIS, with execution of the PA expected prior to the publication of the ROD.

The draft PA stipulates ongoing consultation with tribes, including participation in construction monitoring. The draft PA further requires that development and implementation of an Historic Properties Treatment Plan(s) must take place prior to ground-disturbing activities that have the potential to adversely affect historic properties. The PA stipulates treatment measures to be implemented, regardless of which alternative is selected.

# D.4.10 Public Health and Safety, and Hazardous Materials

This section responds to comments related to the proposed use and storage of hydrogen on the IVS project site.

Comments: L2-8, O2-29, and O4-5.

7) It is the County's understanding that the 30,000 dishes will utilize a closed-cycle heating/expansion system using Hydrogen gas as the fuel source. It is expected that there will be a significant amount of Hydrogen gas (195 cubic feet per dish, or 5,850,000 cubic feet at build-out), and that each dish will need to replace it's Hydrogen gas twice a year. The Hydrogen gas, which is highly explosive, will be produced, transported, stored, and handled during maintenance and replacement all on-site.

The project description states that there will be a two day supply of Hydrogen gas onsite at any given time. Based on 30,000 dishes that need to have their Hydrogen gas replaced twice a year and assuming that every day of the year the facility staff is replacing Hydrogen gas, a two day supply would be able to cover 164 dishes, at 195 cubic feet per dish the storage tank(s) would need to be able to hold 31,980 cubic feet of Hydrogen gas. The County did not find an analysis of an on-site "worst case" blast scenario and/or a proposed fire protection/emergency response plan to protect IVSP employees and all surrounding sensitive parties and wildlife.

#### 8. Fire Plan

Fire in desert ecosystems is well documented to cause catastrophic landscape scale changes<sup>23</sup> and impacts to the local species<sup>26</sup>. The DEIS mentions the impacts of fire via the proliferation of monative weeds (DEIS at C.2-32), it fails to analyze the impact of fire on adjacent natural desert habitat. The DEIS fails to adequately analyze the impact that an escapen on-site-started fire could have on the natural lands adjacent to the project site if it escaped from the site. The likelihood of fire is of particular concern for this proposal which includes large amounts of flammable hydrogen manufactured and stored on site and piped throughout the site. The DEIS also fails to address the mitigation of this potential impact. Instead it defers it to the Worker Environmental Awareness Program (WEAP) and only requires "a discussion of fire prevention measures to be implemented by workers during project activities" (DEIS at C.2-77). A fire prevention and protection plan needs to be developed and required to prevent the escape of fire onto the adjacent landscape (avoidance), lay out clear guidelines for protocols if the fire does spread to adjacent wildlands (minimization) and a revegetation plan if fire does occur on adjacent lands originating from the project site (mitigation) or caused by any activities associated with construction or operation of the site even if the fire originates of for the project site the originates of for the project site of the project site of

04-5

<u>Hydrogen Use</u>: Since the filing of the original AFC several modifications have been made to the plan for hydrogen storage, circulation and use at the site. The original AFC proposed a distributed hydrogen system, with hydrogen bottles on each dish. In a Supplement to the AFC filed in June 2009, the Project was updated to include a centralized hydrogen gas supply, storage and distribution system which is analyzed in the DEIS id D.3-3.

After the release of the DEIS, another supplement was filed by the applicant on May 10, 2010 proposing to increase the amounts of hydrogen piped to each of the "sunflowers" to bring them online every morning. It is our understanding that this increase in volume of hydrogen does not require any additional infrastructure, however, this needs to be clarified in the final EIS. Also, given the possibility of hydrogen leakage and the flammable nature of this gas, the potential

impacts of this increase in the volume of hydrogen on site and in use must be acknowledged and analyzed fully.

Response: As described in Section 2.15 in Appendix B, Determination of NEPA Adequacy, in the FEIS, analysis was conducted assuming a worst case release of all the hydrogen on site. It was assumed that a hydrogen release would form a vapor cloud and detonate causing an unconfined vapor cloud explosion. The distance to an overpressure of 1.0 pounds per square inch (psi) was then determined. That is an overpressure that could cause some damage to structures and injury to exposed members of the general population. The maximum distance to this level of impact was estimated to be 0.13 mile. There are no public receptors at this distance from the project site and in general such overpressures would be confined to the project site depending on the location of the cloud at detonation. It is nearly impossible to detonate hydrogen in an unconfined cloud. Hydrogen also disperses very rapidly due to its low density relative to air. The release scenarios considered in the worst case analysis are very conservative in that a release would almost certainly occur over a period of time resulting in substantial dispersion of the hydrogen while the cloud was forming. Actual experience with hydrogen releases have not resulted in unconfined cloud explosions. It is widely believed that unconfined hydrogen will not detonate without a high explosive initiating event. Measure HAZ-2 was expanded to include a Risk Management Plan that would be reviewed by Imperial County. As a result, it is not anticipated a fire would escape from the site.

# D.4.11 Bonds Required of the Applicant

This section responds to comments regarding bonds that will be required of the applicant.

Comments: O1-10, O1-21, and P10-7.

Inadequate closure protocols and Surety bonding, p. E-13 states that "Laws, Ordinances, Regulations and Standards (LORS) pertaining to facility closure are identified in the sections dealing with each technical area" (Sections C-1 through 15 and D-1 through 5). The promised discussions relating to closure protocols are largely missing from technical area assessments. Specific guidelines for achievement of "restoration" of land post-closure are lacking and the Surety Bonding does not protect the public from the abuses of mine reclamation bonding, which are well known. A Restoration in the sense of returning the land to its pre-development condition is probably impossible, as discussed below.

The level of Surety bonding is placed in the hands of the BLM Authorized Office. This is not adequate for the very complex matter of reclaiming severely disturbed arid lands. The cost, and therefore the level of bonding required, needs to be judged by an independent expert group fully knowledgeable of the problems involved, the time that will be required for the best possible results, the detailed nature of an adequate monitoring program and the actions required based on monitoring results, and the time interval over which restoration activities and monitoring are to be maintained specified. Responsibility for reclamation should be in the hands of independent land restoration specialists, not the BLM, which is insufficiently staffed (as is amply demonstrated by failure to enforce mandated mitigations in numerous projects, including, for example, transmission lines).

O1-10

p. E-2. Definitions section is incomplete. A closure plan that requires "restoration" of landforms and "revegetation" of complex arid lands ecosystems must define those terms carefully. Restoration in the sense of returning the land used by the facility to its pre-development condition is probably not possible. The definition of Grading, Boring, and Trenching in covering such activities as soil removal, removing topographic highs and filling lows, and drainage modifications undersecre the impossibility of restoration sensu stricto. The more appropriate term is "reclamation," which can and should be defined rigorously.

p. E-7 states that "...the project owner shall post a surety bond adequate to cover the cost of decommissioning and restoration, including the removal of the project features that have been constructed for that that [sio] portion of the site and restoring the native topography and vegetation...This surety bond will apply to all site disturbance features".

"The project owner shall provide the surety bond to the BLM AO [Authorized Office] for approval and to the CPM [Compliance Project Manager] for review with written evidence indicating that the surety bond is adequate to cover the cost of decommissioning and removing the project features constructed, allowing for site restoration. The written evidence shall include a valid estimate showing that the amount of the bond is adequate to accomplish such work."

The second paragraph quoted is not as inclusive as the first, apparently implying that only removal "of project features constructed" is to be bonded. The following phrase, "allowing for site restoration" is ambiguous. This must be restated to make it clear, and consistent with the first paragraph quoted.

Considering the major difficulties of reclaiming severely disturbed arid lands to an acceptable condition, the costs, and therefore the level of bonding, should be done in consultation with independent specialists fully knowledgeable with arid lands reclamation who do not have an economic interest in the project. Guidelines and standards for reclamation and revegetation must be fully specified in the SAVDEIS, including the nature and longevity of monitoring, with specific actions tied to monitoring findings. In other words, if monitoring reveals problems, there should be specific plans in place to deal with them in a timely manner. Reports on degree of successful reclamation fully explained, monitoring, and actions taken in response to monitoring results should be made public annually. Estimates of costs can and should be made now so that potential facility owners are aware that this is not a small cost item or time commitment.

Bonding should be done in a way that the owner cannot escape paying the costs of reclamation 8

p. E-11. Where is the "Closure, Revegetation and Restoration Plan"? This document must be provided in the SA/DEIS for public review.

p. E-11. It is stated that "Laws, Ordinances, Regulations and Standards (LORS) pertaining to facility closure are identified in the sections dealing with each technical area." This does not appear to be true, particularly in regard to standards.

p. E-11. It is stated that "Closure would be conducted in accordance with Condition of Certification BIO-14 that requires the project owner to develop and implement a Closure, Revegetation and Rehabilitation Plan." In the first page E-11 citation above, it is called Revegetation and Restoration Plan, not Revegetation and Rehabilitation. Restoration and Rehabilitation are not the same. Assigning development of such a plan should be performed by an independent fully qualified consulting group assigned by the BLM, not the project owner. And, the language of this statement should be mandatory, not permissive

01-21

Section D was searched for LORs relevant to site "restoration" in keeping with the statement made on page E-11 cited above about the location of LORS pertaining to facility closure, with the following results:

7. Is 100% of the financing for this proposed project in place? I doubt it! What are the conditions of this financing? Has the CEC looked at it? Should we raze our public lands only to find out that the project is abandoned? Who is going to restore our public lands if this occurs? If this project is ever approved, one of the requirements has to be that the applicant must post a bond that will remove all the concrete and infrastructure for this project and restore the public lands to their original condition including restorations of new roads should the project fail. This bond must survive the bankruptcy of the project by the applicant.

P10-7

Response: As the steward for the management of Federal public lands, the United States Bureau of Land Management (BLM) has a fiscal responsibility to ensure that projects it approves on those lands do not result in financial liabilities for American taxpayers. As part of the right-of-way (ROW) grant application process, the BLM will identify specific financial resources that must be placed in bonds by the applicant and that would be available to the BLM in the event the project applicant fails to live up to the project construction, operation, and decommissioning requirements; financial; environmental protection; and other commitments and responsibilities associated with the project. As a result, as part of the execution and approval of the ROW grant for the IVS project, the BLM will require the applicant to provide bonds to cover the three major project phases (construction, operations, decommissioning). Those funds would be used by the BLM in the event the project applicant does not meet the defined project obligations and the BLM has to step in return the project site to its pre-project condition. This can include decommissioning of project equipment, demolition and removal of project structures, remediation of any hazardous materials contamination, repair/restoration of

drainages and natural topography, revegetation, etc. The value of the bond for each of those three phases will be developed by the BLM and incorporated in the project conditions detailed in the ROW grant.

### D.4.12 Visual Resources

The comments on the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) identified concerns regarding visual impacts including dark skies, light/glare, and desert views. These comments are addressed in the following sections.

## D.4.12.1 Impacts to Dark Skies

Comments: F1-12 and O5-2.

#### C.13 - Visual Resources

The EIS identifies that the project would result in significant unavoidable adverse visual impacts:

... the proposed project would substantially degrade the existing visual character and quality of the site and its surroundings, including motorists on Interstate 8, recreational destinations within the Yuha Desert Area of Critical Environmental Concern and portions of the Juan Baulista Anza National Historic Trail, resulting in significant impacts. Because effective, feasible mitigation measures could not be identified by staff, these impacts are considered to be unavoidable. Oraft EIS. p. C. 13-11)

The project would also impact the dark night skies of the area, which is another important experience enjoyed by visitors to the desert. The 400-watt high-pressure sodium lights would illuminate the roadways throughout the site, and other infrastructure components would utilize other types of illumination. Condition of Certification VIS-2 is intended to minimize glare and lighting to the extent feasible. While lighting would be shielded to minimize glare and would not project directly in the night sky, reflection off the mirrored SunCatchers as well as the ground surface would still result in significant night sky light pollution. Due to the dark night skies that make up the lightscape of this area of the desert, this should be identified as a significant impact in the EIS. Also, please note that lighting impacts are not addressed the CEQA discussion on pages C.13-29 and 30.

In the event this project is approved, the NPS asks that a provision be included in the approval document that requires mitigation of impacts to night skies to the maximum extent feasible. We would like to work with the Bureau and the project applicant to identify additional mitigation to

lower the impact of the project on night skies. The NPS has national recognized night skies experts on staff.

corridor. The visual impact will destroys the viewshed for miles. The constant noise will make it impossible for the visitor to envision the experience of expedition members. The destruction of the night sky will prevent the visitor to experience the setting.

F1-12

F1-12

Response: These comments raised concerns about potential project related light impacts to dark night skies in the area. To address the potential construction and operation light impacts to dark skies and campers in the Yuha Desert Area of Critical Environmental Concern (ACEC) and the Juan Batista de Anza National Historic Trail (Anza Trail), Measure VIS-2 was incorporated in the IVS project. That measure specifically requires:

- VIS-2

  Temporary and Permanent Exterior Lighting. To the extent feasible, consistent with safety and security considerations, the project owner will design and install all permanent exterior lighting and all temporary construction lighting such that a) lamps and reflectors are not visible from beyond the project site, including any off-site security buffer areas; b) lighting does not cause excessive reflected glare; c) direct lighting does not illuminate the nighttime sky, except for required FAA aircraft safety lighting; and will employ on-demand lighting technology such as a radar-triggered audio-visual warning system; d) illumination of the project and its immediate vicinity is minimized, and e) the plan complies with local policies and ordinances. The project owner will submit to BLM's Authorized Officer for review and approval and simultaneously to Imperial County for review and comment a lighting mitigation plan that includes the following:
  - The locations and directions of light fixtures will take the lighting mitigation requirements into account;
  - The lighting design will consider setbacks of project features from the site boundary to aid in satisfying the lighting mitigation requirements;
  - The lighting will incorporate fixture hoods/shielding, with light directed downward or toward the area to be illuminated;
  - D. Light fixtures that are visible from beyond the project boundary will have cutoff angles that are sufficient to prevent lamps and reflectors from being visible beyond the project boundary, except where necessary for security;
  - All lighting will be of minimum necessary brightness consistent with operational safety and security; and
  - F. Lights in high illumination areas not occupied on a continuous basis (such as maintenance platforms) will have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied.

Based on compliance with this measure, the project construction and operation lighting will substantially minimize impacts related to light effects on dark skies.

# D.4.12.2 Glint/Glare Impacts

Comments: F1-13, NA1-6, NA1-10, S1-4, L2-10, O7-6, and O8-18.

Glare from the mirrored SunCatchers would also have a detrimental impact on visitors to the area. As identified in the Draft EIS page C.13-46, VIS-6 requires a glare mitigation plan to minimize the visibility of mirror glare to esubbound and westbound traffic on I-8 utilizing a variety of measures which could include 20 foot high fencing or large earth berms. Glare could also affect distant recreational visitors to the area. The glare mitigation plan should also evaluate visual and other impacts resulting from the implementation of these potential mitigation measures, as 20 foot-high fencing and berms have the potential to generate their own environmental impacts. Once again, the NPS would like to work with the Bureau and the project applicant on the measures to be included in the mitigation plan.

F1-13

## The Analysis of Cultural Resource Impacts Is Incomplete and Based on Inadequate Data.

Under NEPA, BLM is obligated to take a "hard look" at the potential environmental consequences of the proposed project. Klamath-Siskyou Wildlands Center v. Bureau of Land Management, 387 F.3d 989 (9<sup>th</sup> Cir. 2004). BLM must ensure the scientific integrity of the discussions and analysis in its EIS. Native Ecosystems Council v. U.S. Forest Service, 418 F.3d 935 (9<sup>th</sup> Cir. 2005). A Draft EIS must be as complete as possible and must not ignore or exclude important analysis or factual information. See 40 C.F.R. § 1502.9(a) ("the draft statement must fulfill and satisfy to the fullest extent possible the requirements established for final statements in section 102(2)(C) of NEPA").

NA1-6

In this case, the analysis of cultural resource impacts is based on incomplete and unreliable identification efforts. The DEIS describes the inadequate effort made by the applicant to document the cultural resources affected by the project. Throughout the cultural evaluations, BLM and the CEC have expressed numerous concerns with the completeness and accuracy of information provided by the applicant about cultural resources in the project area. See DEIS, pages C.2-57 and 58 (noting that documentation by the applicant of approximately 43% of the archaeological sites in the project area was probably inadequate, and noting conclusion of third-party consultant that extant documentation for the archaeological sites in the project area was inadequate for assessing either the historical significance of the resources or the effects that the proposed action would have on them). Although 432 cultural resource sites have been previously located in the project area, the inventory conducted for the DEIS definitively re-

located only two. DEIS, C.2-65. Overall, the survey effort identified 337 total cultural resources, which is far less than the 432 sites previously recorded. DEIS, C.2-85.

The inadequate identification of resources means that BLM and CEC cannot accurately evaluate the impact that this project will have on cultural resources. On page ES-15 of the DEIs, there is no summary of the short and long term adverse impacts to cultural resources. Instead, that discussion is "to be provided." The very same table on page ES-15 asserts there will be "no cumulative adverse impacts" to cultural resources and that the "level of significance after mitigation" will be "less than significant." It is not clear how BLM and CEC can determine the correct "level of significance" when the impact analysis has not yet been completed.

The DEIS states that the project would have "significant adverse effects" on a "presently unknown subset of approximately 328 known prehistoric and historical surface archaeological resources and ... on an unknown number of buried archaeological deposits." ES-24. It is not apparent from the DEIS how many of the surface resources will actually be affected. The inadequate identification efforts make it impossible for the decisionmakers and interested public to reasonably evaluate the cultural significance of the area and the full extent of impacts that this project will cause to the cultural landscape. Marsh v. Oregon Natural Resources Council, 490 U.S. 360 (1989) (noting a primary purpose of NEPA is to foster both informed decision making and informed public participation). This also violates the obligation to make a good faith effort to identify cultural resources of concern to interested Indian tribes. See 36 C.F.R. § 800.4(b) (requiring agency to make reasonable and good faith effort to identify historic properties affected by undertaking).

NA1-6

There has been no evaluation of the eligibility of the cultural resources for listing on the National Register of Historic Places. This also makes it impossible to know the extent of impact that this project will have on the cultural landscape. As noted in the Tribe's May 4, 2010 letter commenting on the draft Programmatic Agreement (which is attached hereto as <u>Exhibit. A</u> and incorporated in these comments by reference), the Tribe objects to BLM's proposal to defer all evaluation and mitigation development efforts until after the decision has been made on the right-of-way. Approving the right-of-way prior to evaluating the eligibility of the resources violates both NEPA and the NHPA. Both NEPA and the NHPA are intended to inform the decision-making process. Deferring evaluation of NHPA-eligibility until after the decision to permit the project has been made is inconsistent with these laws.

In addition to direct impacts to cultural sites in the project area, there will also be impacts outside the project area due to visual and glare impacts. There are many culturally significant areas outside the project boundaries, as evidenced by the proposed Plaster City ACEC discussed above. The DEIS, page C.13-10, also notes the close proximity of culturally and historically significant areas. Several of the cultural sites and geoglyphs located in the Yuha area are ceremonial in nature and the presence of the Suncatchers will interfere with the use of these sites and ability to see from these sites to other landscapes nearby.

In sum, BLM and CEC must complete the cultural resource identification, consultation, and evaluation process before making a final decision on this Project.

NA1-6

The cumulative glint/glare impacts associated with the anticipated solar development projects is also inadequately addressed. The glint/glare study performed for the DEIS is not adequate because it fails to account for the cumulative effect of the entirety of solar projects proposed in the broader area. The cumulative glint/glare from the proposed solar developments will not only affect driving conditions along the 1-8 corridor, but will also affect the ability of tribal people to use ceremonial sites nearby. In sum, the cumulative visual impacts resulting from the project and other developments have been inadequately addressed.

NA1-10

Visual aspects of the project, specifically glint and glare, must be documented not to have any potential impact to motorist driving on I-8.

S1-4

determination of consistency with the Airport Land Use Compatibility Plan. The visual impacts to the military's low level training routes within the area will need to be analyzed and assessed by the Commission and affected military base officials.

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Views from nearby wilderness areas would also be ruined by this huge expanse of mirrors reflecting light, and loud noise.

# Tessara Solar Glint & Glare Study:

- Why are no Key Observation Points located on Evan Hewes Hwy (East or West) or from the Coyote Mountain Wilderness or Painted Gorge areas on the northwest, looking back at the project site? The areas to the NW are actually slightly elevated.
- Appendix A: Report on SunCatcher Luminance (4-20-10) "Sunrise occurred at 6:01am MST. The
  SunCatchers began operation at about 6:30am. The parabolic dishes moved to an "offaxis" mode
  initially. During this mode of operation a reflection of the sun was visible in many of the

parabolic reflector dishes. I attempted to measure the luminance of a solar image. However my instrument is limited to 685,000 cd/m² and it saturated when I tried to measure the solar reflection. The solar reflection did appear to be less difficult to view than the Sun itself. The luminance of the Sun at a high solar altitude can have a luminance of approximately 1.6 billion cd/m².

- . The excerpt above, indicates there may be more impact than has been admitted to.
- At page 13 last bullet, Glint Analysis (SunCatcher TM In off-axis position) Off-axis tracking SunCatchersTM have the potential for viewers to experience glint. This statement appears: "However, in some conditions where a viewer has an elevated view of the Imperial Valley Solar Project, alint may be visible."
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 This information was not made very clear in the public document.

- It appears that there will be impacts to frequent low-flying air traffic related to US Customs and Border Patrol, and military flights related to Seeley Air Station and other Sn Diego and Yuma related military operations as the project area is located in their flight path.
- The Desert View Tower, a historic landmark / tourist attraction that, draws folks from around the world, sits at an elevated location with a clear view of the valley floor, US Gypsum, and the IV Solar Solar Two project site.
- The Coyote Mountain Wilderness, the Jacumba Mountain Wilderness and the Vuha ACEC also sit at an elevated location from the project, as does the In-Ko-Pah ACEC, and the McCain Valley Resource Conservation Area with scenic overlooks out over the Imperial Valley and project area.

Response: These comments raised concerns about glint/glare from the SunCatchers and cumulative glint/glare impacts associated with other solar development projects. Measure TRANS-4 specifically requires that:

TRANS-4 The project owner shall prepare and implement a SunCatcher Mirror Positioning Plan that would avoid the potential for human health and safety and significant visual distractions from solar radiation exposure.

**O8-18** 

This plan will be coordinated with the Federal Aviation Administration (FAA), the California Department of Transportation (Caltrans), the California Highway Patrol (CHP), and Imperial County and will be updated on an annual basis for the first five years and at 2-year intervals after that. The project applicant will be specifically required to coordinate with the FAA on the placement of the SunCatchers, pursuant to the FAA regulations in the Code of Federal Regulations Part 77.

Measure VIS-6 specifically requires:

#### VIS-6

Reflective Glare Mitigation. The project owner will develop and implement a glare mitigation plan that minimizes visibility of the SunCatcher mirrors to both east- and west-bound traffic on I-8 using one or more measures, which may include but are not limited to 20-foot tall slatted fencing, particularly at the eastern and western boundaries near the highway; earth berms, and/or an increase in the setbacks of the SunCatcher units from the road; and must include a SunCatcher Mirror Positioning Plan (MPP) describing how the outermost rows of SunCatchers could be positioned to avoid or minimize the most intensive potential glare incidents on motorists as called for under Measure TRANS-4. The MPP will include a glare complaint resolution form to be distributed to the BLM and the NPS.

Based on implementation on the SunCatcher Mirror Positioning Plan and the glare mitigation plan, the project related glare/glint impacts will be substantially reduced.

After the publication of the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS), the applicant prepared a Glint and Glare Study (Power Engineers, April 26, 2010 and errata dated May 21, 2010) to specifically respond to two key questions regarding visual effects associated with the SunCatcher mirrors:

- (1) Will a 20-foot (ft) high fence or earth berm reduce glint and glare for off site viewers? Based on the study, it was determined that a 20 ft high fence or berm would provide minimal benefits in terms of screening any off site views from glint and glare. The analysis determined that most glint occurs when the SunCatchers are in the offset tracking position. The applicant has determined that the offset tracking position can be adjusted by computers to a setting where the glint to off site viewers would be substantially reduced.
- (2) Will highway travelers experience a flashing effect while driving next to rows of SunCatchers? It is possible that in rare circumstances, motorists may experience a flashing effect in their peripheral vision. The analysis determined that most of the

potential for flashing effects occurs when the SunCatchers are in the offset tracking position. The applicant has determined that the offset tracking position can be adjusted by computers to a setting where the flashing effect to motorists would be substantially reduced.

In summary, the IVS project will result in changes in light, glint, and glare on and around the project site. However, based on mitigation included in the IVS project and adjustments to the offset tracking position of the SunCatchers, those impacts can be substantially reduced.

The potential for cumulative glint/glare impacts as a result of other cumulative projects and the IVS project is discussed in Section 4.16, Visual Resources, in the FEIS. That analysis determined that the IVS project in combination with past and foreseeable future projects would contribute to substantial visual changes in the area. If those other projects include solar or other technologies which potentially create glint and glare, there could be a cumulative increase in the overall amount of glint and glare in the area.

Some comments raised concerns about the impacts of glint/glare from an elevated view from a low-flying plane and visual impacts to the military's low level training routes in the area. As noted above, Measure TRANS-4 provides for a SunCatcher Positioning Plan and the project owner would coordinate with the FAA during the development of that plan. Compliance with the plan would substantially reduce glint/glare impacts on aircraft.

# D.4.12.3 Impacts on Views

Comments: NA1-9, S2-4, L2-3, O5-2, O6-6, O7-5, O7-6, O8-18, O8-22, P7-1, and P7-6.

In addition to the direct destruction of cultural resources that will result from the development of one million acres of land for solar and wind projects, there will also be indirect visual impacts. For example, the Tribe is concerned that certain ceremonial areas located in the Yuha, just south of the project area, would be affected by the view of this project. The cultural and ceremonial use of the landscape will be impaired when tens of thousands of solar pedestals are visible from these areas.

NA1-9

State Parks also has concerns regarding the aesthetic impacts the proposed project would have on the desert lands surrounding the southern portion of Anza-Borrego Desert State Park; the impact of nearly 550 miles of unpaved and paved access roads on the project site - the same amount of roads

found in the entire 600,000+ acre Anza-Borrego Desert State Park; and the

2) The County of Imperial agrees with the DEIS regarding the Project's impacts to visual resources along Interstate 8. From the Impenal County line to the edge of the agricultural lands approximately 25 miles of open space desert visual resource. With the exception of the small community of Ocotillo/Nomirage and the United States Gypsum Plant, the desert visual resource is unbroken. This project proposed to build 30,000 38 by 40 steel and glass dish style structures over a 10+ square mile area, L2-3 predominantly along both sides of the Interstate 8 corndor. These impacts will be significant. The DEIS identifies mitigation such as setbacks from Interstate 8, but do not fully eliminate the impact. There should be more consideration with project reduction and/or more screening methods. The reduced project alternative limits the project less than half of the total structures, greatly decreasing the visual impacts and reduce the project footprint from 6,500 acres to 2,600 acres.

corridor. The visual impact will destroys the viewshed for miles. The constant noise will make it impossible for the visitor to envision the experience of expedition members. The destruction of the night sky will prevent the visitor to experience the setting.

The Project "would substantially degrade the existing visual character and quality of the site and its surroundings..." SADEIS, p. C.13-1. The SADEIS claims that "these impacts are... unavoidable." SADEIS, p. C.13-1. This portion of the impact assessment is deficient because (1) the specific nature and magnitude of the aesthetic and visual impacts are undisclosed and unknown; (2) some of the adopted mitigation measures could have significant impacts, but these impacts are undisclosed, and (3) it is unclear whether or not the project transmission line will be relocated or not. (As previously mentioned, the SA/DEIS also unlawfully defers formulation of the glare mitigation plan, so it is impossible to tell whether the plan actually will mitigate the potentially significant glare impacts.)

First, the discussion of aesthetic impacts is insufficient because it does not even attempt to ascertain what the actual aesthetic impacts of the Project will be. The Project applicant failed to include information about the Project's visual impacts on the Jacumba Wilderness, Coyote Mountain Wilderness, Painted Gorge, and Yuha Basin, and "fast-track time constraints" apparently prevented CEC and BLM from creating their own simulations, so the analysis of impacts on these areas is limited at best. SA/DEIS, pp. C.13-10, C.13-18. Staff simply assumed that the Project would have the same impacts as the Plaster City facility, 6 Id. The contrast in the depth of analysis of aesthetic impacts to these areas the "A-br those areas that the Project applicant has provided information about its striking. The public is prevented from ascertaining anything about the nature of these aesthetic impacts beyond that they will be sizeable. Because the SA/DEIS fails to include simulations of these viewpoints, it is also impossible for members of the public to suggest methods of avoiding or mitigating these impacts.

Second, the mitigation measures themselves could have significant impacts, but these impacts were not disclosed. The Guidelines specify that "[i]f a mitigation measure would cause one or more significant effects ..., the [se] effects shall be discussed..." Guidelines § 15126.4(a)(1)(D). The SA/DEIS requires the applicant to submit and implement "a glare mitigation plan that minimizes visibility of the" Project by "utilizing ... 20-foot tall stated fencing...; earth berms; and/or an increase in the setbacks of the" Project from 1-8. These mitigation measures, which themselves involve the construction of enormous structures, could have significant visual and other impacts, but these impacts are not disclosed or analyzed.

Finally, mitigation measure VIS-3 is unclear. One the one hand, the SA/DEIS' summary of this measure states that it would require, "[I]I feasible, re-alignment of the segment of the project transmission line paralleling II-]8 to be set back from the roadway at least ½ mile." SA/DEIS, p. C.13-18. But the measure itself contains no such "if feasible" language and instead states that "the applicant shall set back the transmission line. . . " SA/DEIS, p. C.13-44. This example illustrates why it is

impermissible to rely on undeveloped mitigation measures – the public cannot tell if it is feasible to relocate the transmission line or not. If not, the magnitude of visual impacts will be different than what the SADEIS assumes.

The area now provides scenic views while driving along Highway 8, in a historic area of the Anza Trail. If this historic route is to be maintained, the viewshed should not be compromised by large-scale developments.

This historic value cannot be mitigated. We would much rather have a trail corridor with interpretive displays in this desert, than a scraped and industrialized projects.

O6-6

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Views from nearby wilderness areas would also be ruined by this huge expanse of mirrors reflecting light, and loud noise.

07-6

#### Tessara Solar Glint & Glare Study:

 Why are no Key Observation Points located on Evan Hewes Hwy. (East or West) or from the Coyote Mountain Wilderness or Painted Gorge areas on the northwest, looking back at the project site? The areas to the NW are actually slightly elevated.

O8-18

 Appendix A: Report on SunCatcher Luminance [4-20-10] "Sunnise accurred at 6:01am MST. The SunCatchers began operation at about 6:30am. The parabolic dishes moved to an "offaxis" mode initially. During this mode of operation a reflection of the sun was visible in many of the

porabolic reflector dishes. I attempted to measure the luminance of a solar image. However mistrument is limited to 685,000 cd/m² and it saturated when I tried to measure the solar reflection. The solar reflection did appear to be less difficult to view than the Sun itself. The luminance of the Sun at a high solar altitude can have a luminance of approximately 1.6 billion cd/m²."

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O8-18

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   This information was not made very clear in the public document.
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- The Coyote Mountain Wilderness, the Jacumba Mountain Wilderness and the Yuha AEEC also sit
  at an elevated location from the project, as does the In-Ko-Pah AEEC, and the McCain Valley
  Resource Conservation Area with scenic overlooks out over the Imperial Valley and project area.

## Visual Resources / Impacts

- Starting with the IV Solar/Solar Two project, the entire viewshed from I-8 and Evan Hewes Hwy
  will be destroyed for the entire corridor starting west of Dunaway Road, through Octollio, and
  continuing through Eastern San Diego County, including the Cleveland National Forest.
- Views from the Coyote Mountain and Jacumba Mountain Wilderness Areas, the Anza Borrego Desert State Park, the Yuha and In-Ko-Pah ACEC, the McCain Valley Resource Conservation Area, the historic Desert View Tower, the De Anza Trail, and more will be forever altered, degraded, transformed, destroyed by the 750 MW IV Solar /Solar Two project, the 561 MW Cotillo Express Wind project, the 1,240 MW Energia Sierra Juarez Wind project (Sempra), 1,000 MW Zemer Energy wind project, 200 MW Tule Wind project (Iberdrola), the 160-300MW Kumeyaay Wind project (SDG&E, Invenergy, Campo tribe), the 57 MW Manzanita (SDG&E and Manzanita tribe) the Sunrise Powerlink (SDG&E), the ECO Substation (SDG&E), and more.
- Appendix VR -1 fig 1 7 (SA/DEIS): Visual simulations do show SunCatcher arrays and some transmission lines but they do not accurately demonstrate the overall visual resource impact with all 30,000 SunCathers, all the on-site massive water, hydrogen, and other tanks, the new gen-tie lines, on-site substations, the Sunrise Powerlink, the Southwest Powerlink, the security fending around the 6500 acre site and other project components.
- Please ensure that the required Visual Resource surveys /inventories are also conducted from the Native American perspective and that these significant Traditional Cultural Properties and Landscapes, and others, are protected for future generations.
- Carmen Lucas and the Quechan tribal representative expressed their concerns on cultural impacts in their public comments at the May 25th hearing.
- Carmen Lucas, in her March 23, 2007 comments to the El Centro BLM office on the Ocotillo MET tower (CA-670-2005-95), now the 561 MW Ocotillo Pattern Wind energy project, proposed west of SES Solar Two /IV Solar, expressed her concerns regarding the traditionally significant Coyote Mountain and Mt Signal landscapes and creation stories. Here is an excerpt regarding Traditional Cultural properties, landscapes and resources:

"It should be understood that part of what makes up the sacred can and most often is the visual quality and the quietness that is often part of that visual quality of place. It is my opinion, that the visual impact of the Wind Hunter Ocotillo Met Tower will have a destructive adverse effect on this important intangible Culture Resource, Further it is also the undersigns opinion that Traditional Culture Landscape, the visual quality and the essence of those properties cannot be mitigated and the public is better served if such places are left alone and preserved for future generations."

My name is Brendan Hughes and I would like to comment on the Tessora-Solar Two project in Imperial County. Contrary to the CEC staff's assessment, this project has unmittgable impacts on biological, cultural, and visual resources, and therefore should not be approved.

O8-22

Moreover, Impacts to the visual resources of the area cannot be miligated, as the DFIS reclaims. This is another problem for local Inflain these, whose religious currennies and practices will be disrupted by this visual disturbance to their cultural landscape. In addition, those who enjoy the landscape of the Yuha Desert for aesthetic purposes will have lost this preclous resources and will have no recourse for its return.

P7-

Response: Some comments raised concerns about the aesthetic impacts on desert lands, impacts to viewsheds including from Evan Hewes Highway, scenic views of the Anza Trail, and impacts to visual resources along Interstate 8. As discussed in the SA/DEIS and the FEIS, Measure VIS-5 would provide improvements to benefit visitors of the Anza Trail and the Yuha Desert ACEC. The project applicant will contribute funds to the National Park Service (NPS) for improvements for the Anza Trail and funds to BLM for improvements to the Yuha Desert ACEC. Those improvements could include, but not be limited to, interpretive displays or exhibits, improvements to use areas, mounted telescopes, or other improvements to be determined by the NPS and BLM. Measure VIS-4 provides for the setback of the SunCatcher units from roads and measures to minimize views of the SunCatchers with fencing, and/or berms. Measures VIS-6 and TRANS-4 would provide for a glare mitigation plan and a SunCatcher Positioning Plan to avoid or minimize potential glare to motorists, and Measure VIS-7 would provide for the revegetation of staging areas in the project area.

One comment was regarding the impact of 500 miles of unpaved and paved access roads on the IVS project site. As discussed in the SA/DEIS and the FEIS, some roads would be paved to reduce fugitive dust; unpaved roads will be treated with polymeric stabilizers to stabilize the surfaces of those roads. The grading/blading of roads would be conducted to specifically limit the removal of terrain undulations as feasible, ground disturbance activities would be minimized wherever possible, and paved roads would be constructed as close to the existing topography as possible. Because the roads would be developed as close to the existing topography, the views of the roads from off site locations may be obscured by the irregular terrain of the project site, the low rises adjacent to the highway, fencing, and intervening structures on the site.

Some comments raised concerns of the views of the project site from nearby wilderness areas (Jacumba Wilderness, Coyote Mountains Wilderness) and other special land use designations (Painted Gorge, Yuha Basin/Yuha Desert ACEC). As discussed in the SA/DEIS and the FEIS, the visibility and prominence of the IVS project at background distances is limited. The project contrast would be due primarily to color and texture contrast; at background distances the mirror reflections would often resemble the surface of a lake. The overall line and form contrast would be very weak due to the oblique viewing angle and low overall visual magnitude within the field of view. Project contrast would be seen, but would not attract attention. As a result, no KOPs in those areas were identified or analyzed.

The view from the vicinity of the Yuha Geoglyphs, along the Anza Trail, at a distance of approximately 3 mi, the IVS project would be very evident but would exhibit a moderate degree of contrast. Color and texture contrast could be moderately high, but form and line contrast would be weak due to the level, oblique angle of view and the small part of the field of view occupied by the IVS project. Similarly, the visual dominance of the IVS project would be moderate in scale at this distance and from other principal destinations in the Yuha Desert ACEC, such as Yuha Well, fossil shell beds, and segments of the Anza Trail south of the Yuha Geoglyphs, and along Highway 98 and the surrounding areas, the IVS project would not be visible due to intervening terrain of washes and low hills. In the context of high viewer sensitivity, the impacts of the IVS project at this distance would be adverse, but not substantial.

Some comments raised concerns about why there were no views of the Key Observation Points (KOPs) on Evan Hewes Highway or from the Coyote Mountains Wilderness or Painted Gorge areas. As discussed in the SA/DEIS and the FEIS, foreground views of the IVS project from Evan Hewes Highway would experience strong visual dominance and visual change by the IVS project. Views of the mountains would be obstructed from this location. Therefore, all views in the foreground and the near-middle-ground distance zones to at least 1 mile away would experience strong project dominance and visual change, which would result in a substantial adverse visual impact.



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### D.4.13 Water Resources

The comments received regarding water resources concern three primary issues: the modification to the project to use well water for construction and initial operations, water supply, and water pollution/quality impacts to surface water and groundwater, as discussed in the following sections.

Comments: F2-6, S2-5, L2-4, L2-5, O1-18, O1-19, O1-25, O2-33, O6-9, O6-16, O7-2, O7-3, O8-15, O9-3, O9-11, O9-14, O9-34, O9-35, O9-36, O9-37, O9-41, P11-12, P11-24, P11-35, and P11-38

In addition to the above, we are concerned about the Project's potential impacts on groundwater, We note that, on May 10th the Project proponent released a Supplement to the Imperial Valley Solar Application for Certification to BLM and the California Energy Commission (CEC). That supplement includes analyses of project design modifications, and proposes, as an alternative water supply for the Project, a sole source aquifer that may already be over-appropriated. An analysis of this newly proposed water source and the potential

F2-6

impact in terms of erosion and air pollution that would potentially result from construction of the project.

3) The County has concerns with the change in surface water absorption due to the development of 275 miles of roads that will cover an estimated 667 acres (fs.280' long x 20' wide (fire lanes) X .275 miles) / 1 acre foot). The County could not find precise dimensions of the Suncatchers (dishes), in terms of footprint in the active and "wind stow" positions. How much land will be covered by the dishes, support buildings and equipment? What is the amount of area, overall, that the project would cover that would directly Impact the surface water absorption? Assuming absorption is reduced what is the impact to the existing washes and drains?

2.4

4) It is the County's understanding, based on the CEC hearing on May 25, 2010, that IVSP proposes to use water from the Westwind's water well in Ocotillo for a temporary water source during the construction phase, with permanent water from the Seeley County Water District. If a water supply is proposed from the Ocotillo "Westwind's" water well, proof of compliance with the February 23, 2005 Imperial County Planning Commission's approved conditions of well registration will be necessary along with an executed contract for water prior to use of the water well by IVSP. The conditions limit the well water extraction to 40 acre feet a year, it is strongly recommended that the CEC take into account the on-site water needs for the Westwind's parcel and historical residential users in its permitting of the IVSP to use this off-site waters source. Also, it needs to be noted that the project description does not denote Westwind as a water supply source.

L2-5

p. C.7-2. It is stated that the primary water use of the facility would be for mirror	
washing, estimated to require 33,550 gallons per day. If this is the primary use of water,	
why is it necessary to upgrade the Seeley Waste Water Treatment Plant to provide six	
times as much water per day (200,000 gallons)? If it is decided instead to use	
groundwater what supply level will be sought?	

01-18

p. C.7-3. The statement claiming less than significant impacts on groundwater is not supported. Use of tertiary-treated water (Title 22 standard; p. C.7-15) imports numerous toxic contaminants onto the site that were not removed by treatment of the water. The proposed uses of this water, including dumping residual waste water, in which contaminants have been concentrated into evaporation ponds is likely to lead to progressive contamination of the unsaturated zone, and ultimately groundwater contamination by infiltration through the unsaturated zone. This can continue long after site closure. Monitoring of the concrete-lined evaporation ponds for leakage would do no more than validate contamination of the unsaturated zone if leakage is detected.

01-19

C.7 - Hydrology, Water Use, and Water Quality (Soil and Water Resources)
This section simply states that the project conforms to all applicable LORS, with no
discussion of what LORS, if any, apply to soil loss from grading and erosion, or soil

01-25

contamination by leakage of evaporation ponds and other spillage absorbed by the soils. It is appropriately admitted (p. C.7-1, 2) that the effects of changed morphology and the nature of sediment carried offsite by runoff are not known. Thus, it cannot be accurately stated that the project conforms to all applicable LORS, and the effects beyond closure cannot be predicted.

## E. Impacts to Water Resources—Groundwater and Surface Water Impacts

#### 1. Groundwater Impacts:

The DEIS analyzes a water resources scenario that no longer is a valid project description. It is now unclear whether or when reclaimed water will be available for the project from the Seeley facility and although the DEIS states otherwise, the proposed project never actually secured access to reclaimed water from the Seeley Waste Water Treatment Facility. The project proponent now proposes to use groundwater for construction and initial operations—in the hopes that the Seeley water will be available in the future. No analysis of groundwater pumping is provided in the DEIS. As a result, the DEIS is inaccurate. This significant change in the project description requires a supplemental EIS.

This is a major change in the project description and this issue needs to be fully evaluated in a revised or supplemental DEIS. The environmental review must consider the water source for the proposed project for the life of the project and must fully analyze the impacts of that water use.

As the BLM is aware, the Ocotillo-Coyote Wells Aquifer was designated as a sole source aquifer by the EPA on September 10, 1996. 61 Fed. Reg. 47752-53. The EPA determined that the aquifer "serves as the 'sole source' of drinking water for the residents of Ocotillo, Coyote Wells, Yuha Estates and Nomirage." Id. at 47753. Further, the EPA determined that the aquifer should be protected because "[t]here is no economically feasible alternative drinking water source near the designated area." Id. As the EPA noted the boundary of the sole source aquifer area at the Elsinore Fault "separates the sole source aquifer area, which contains high quality, potable water, from high saline, non-potable water to the east of the fault." Id. This designation protects this aquifer from contamination by all activities whether by actively polluting the water source or by degradation of water quality due to excessive pumping and overdraft that could draw in non-potable water from adjacent aquifers.

The newly-proposed use of groundwater for both construction and operation of the proposed project (for some unknown length of time) could impact existing uses by local communities for drinking water and domestic use and at the expense of other environmental resources as well. Cumulative impacts of this use along with other proposed groundwater pumping from the aquifer (including by the neighboring Plaster City plant) must be identified and analyzed as well. Impacts of the over-draft of this aquifer and use of groundwater by the proposed project must be fully analyzed. Such impacts include drawdown of springs and creeks in the area and the impacts to the fragile biological resources of the region that could result including resources in the San Sebastian Marsh/San Felipe Creek Areas of Critical

Environmental Concern (ACECs). Any drawdown of the aquifer would have substantial effects on water supply for other existing users. Moreover, issues regarding use of the water in this aquifer by the Plaster City plant have been in litigation for several years, including issues regarding the possibly catastrophic impacts loss of reliable well water would have on existing communities. The BLM cannot ignore the ongoing insecurity and controversy surrounding the proposed alternate water source in the DEIS and must revise or supplement the DEIS to fully disclose and nalvez these issues. 02-33

O2-33

project." SA/DEIS, p. C.7-3. Yet the Project applicant has recently modified the Project so as to satisfy its water needs with groundwater. This substantial change must be recognized in the DEIS.

The DEIS' failure to acknowledge that the Project will use groundwater leads to the second madequacy: the availability of this water, and the impacts of its use, are unknown because neither has been studied. As a result, it is impossible for members of the public to determine whether the Project's water needs can actually be satisfied in this manner. The environmental impacts of such use also have yet to be ascertained. CEC staff has noted that "the amount of water identified for project use. exceeds the permitted amount of groundwater extraction for the well." Staff Comments on Schedule Impacts of AFC Supplement, received May 17, 2010, p. 1. Furthermore, it is unknown how long groundwater will be used. The DEIS must be revised to include this critical information.

O6-9

Third, the impacts that the Project will have on waters of the United States is unknown. The Project has the potential to cause massive amounts of rumoff and erosion. Whether or not these impacts will be significant has yet to be determined because the Project applicant failed to include sufficient information in its application "to resolve uncertainties regarding the ability of the applicant-proposed measures to reduce sedimentation and stream morphology impacts to less than significant." The Project's consistency with section 404 of the Clean Water Act "cannot [be] determine[d] at this time." SADEIS, p. C-76.6. "Inis information must also be included in the SA/DEIS.

The DEIS for the Project claimed that wastewater from the Seeley Wastewater Reclamation Facility (SWWRF) would be used to clean the solar panels. This decision, however, was based on a mitigated negative declaration for the SWWRF. The Seeley County Water District (SCWD) decided not adopt the mitigated negative declaration, but instead to prepare an Environmental Impact Report for the SWWRF. Because of this change, the Project now intends to rely on a sole-source aquifer to provide the wash-water for the panels. The impacts of the groundwater pumping that would be required by the Project are completely unknown, and present many risks.

O6-16

The aquifer from which the wash-water for the Project will be pumped, the Ocotillo-Coyote Wells Aquifer, has been deemed the "sole or principal source of drinking water for Ocotillo, Nomirage, Yuha Estates, and Coyote Wells." of Fed. Reg. 47752 (Sept. 10, 1996). If this aquifer is contaminated it "would create a significant hazard to public health." Id. It is irresponsible for the Project to use four cities' sole-source of drinking water as wash-water, especially in the desert. This impact is not recognized, analyzed or mitigated in the DEIS.

As was admitted in the "Staff Comments on Schedule Impacts of AFC Supplement," dated May 17, 2010, the amount of water needed for the Project "exceeds the permitted amount of groundwater extraction for the well." The risk of groundwater depletion from the Ocotillo-Coyote Wells Aquifer is not recognized, analyzed or mitigated in the DEIS.

Further, the Public Health and Welfare Code forbids projects that receive federal monies that "may contaminate" a sole-source aquifer. 42 U.S.C.A. § 300h-3(e). "Contaminant" is defined as "any

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physical, chemical, biological, or radiological substance or matter in water." 42 U.S.C.A. § 300f(6). By drastically increasing the rate of groundwater pumping from the Ocoillo-Coyete Wells Aquifer, the Project may contaminate this sole-source aquifer by creating a cone of depression in the area of the aquifer, allowing physical, chemical, biological or radiological substances present elsewhere in other groundwater aquifers to leach into the Ocoillo-Coyote Wells Aquifer. If such contamination were to occur, a "significant hazard to public health" would result, in violation of the Public Health and Welfare Code. 42 U.S.C. § 300h.3(e). Because the DEIS did not analyze the possible impacts of pumping groundwater from the Ocoillo-Coyote Wells Aquifer, the risk of contamination from pumping is unknown. The Project's impacts on groundwater pumping must therefore be fully acknowledged, analyzed and mitigated to protect the sole-source of water for Ocoillo, Nomirage, Yuha Estates and Coyote Wells.

06-16

We consider the water use estimates to be too low, based on personal observation of the amount of dust and fine sand blown up into the air in

07-2

Imperial Valley. On May 23, 2010, for instance, a wind storm blew dust far into the sky all over the valley, and this is a regular occurrence. The Ridgecrest Solar Power Project applicant admits that mirror washing would need to be weekly or bi-weekly to maintain the highest efficiency. Though different technology, the SunCatchers still use mirrors to reflect sunlight, and still need washing. Water use may be grossly underestimated in this dusty desert area, especially considering the location just south of the Plaster City off-road use area, and the ground disturbance of the site itself by the applicant grading, cutting vegetation, building more than 200 miles of new roads, driving, and other development.

Cunningham walked through several parts of the project site on May 24 and 25, 2010, and noticed evidence of flood events that appeared to be stronger than those described by the applicant. Washes come down from the south and head north through the site, and a large wash spreads out into anastomosing channels from the south-central to the east. The strength of flows is indicated by two-foot high scour banks, ripple marks in wash sands, mud-cracks of pooled-up water in front of blockages, debris thrown up three feet into shrubs and trees, and sediment piled up around shrubs. Even individual Galleta grass bunches has scour six inches deep and one foot wide on the sides facing flows, and we wonder if similar scour will occur around SunCatcher pedestals over the years.

O7-3

This desert has an intense summer monsoon. How will the perimeter fence not block flows and debris? This is not described in the Staff Assessment/Draft Environmental Impact Statement.

We disagree that these impacts will be insignificant. Downstream effects could be significant to habitat and agricultural lands.

Water source issues / Ocotillo -Coyote Wells Sole Source Aquifer / What is replacement water source for the residents of impacted rural desert communities when industrial use exports decrease and degrade their sole source aquifer?

- Like Sunrise Powerlink, the Solar Two / IV Solar water source is still unstudied and unsecured.
- . The belated backup alternative to use groundwater from Ocotillo, is a non starter.
- The Applicant's response to CURE letter of May 10 is both ignorant and callus in its disregard for the significant negative impacts their proposed groundwater export represents to the low income rural desert communities that rely on the at-risk aquifer to sustain them.
- Figure 1-4 in the May 5 submittal shows the proximity of the proposed Ocotillo water well source and the US Gypsum wells.
- Section 2.5 of the Supplemental downplays the significance of the sole source aquifer designation.
- In 1996, I helped concerned citizens in Ocotillo apply for and secure federal designation of the Ocotillo / Coyote Wells Sole Source Aquifer, after our group BAD secured the Campo/Cottonwood Creek Sole Source Aquifer designation in 1993. These are the only two sole source aquifers in Southern California.
- Link to Ocotillo / Coyote Wells Sole Source Aquifer boundary map: http://www.epa.gov/safewater/sourcewater/pubs/grg\_ssamap\_ocotillocoyotewells.pdf
- The EPA's Sole Source Aquifer (SSA) Program was established under Section 1424(e) of the Safe
  Drinking Water Act (SDWA.) Since 1977, it has been used by communities to help prevent
  contamination of groundwater from federally-funded projects. It has increased public
  awareness of the vulnerability of groundwater resources. The SSA program allows for EPA
  environmental review of any project which is financially assisted by federal grants or federal

O8-15

loan guarantees. These projects are evaluated to determine whether they have the potential to contaminate a sole source aguifer: http://www.epa.gov/region9/water/aroundwater/ssa.html

- The State Water Resources Control Board (State Water Board) Clean Water State Revolving
  Fund Program Federal Cross-cutting Environmental Regulations Evaluation Form for
  Environmental Review and Federal Coordination questionnaire includes a Water Sources
  question that asks if the project is in the boundaries of a SSA. The Ocotillo/Coyote Wells Aquifer
  is one of the five California SSAs listed See the document at the link copied below:
  <a href="https://www.warcb.ea.gov/water-issues/programs/prants\_loans/art/docs/envcompliance/federal\_cross\_cutting\_eval\_vation\_form.pdf">https://www.warcb.ea.gov/water-issues/programs/prants\_loans/art/docs/envcompliance/federal\_cross\_cutting\_eval\_vation\_form.pdf</a>
- At a minimum a site specific study and full EIR would be legally required to determine the impacts to the Ocotillo source well(s) and aquifer which are located wholly within the boundaries of the federally designated Ocotillo / Coyote Wells Sole Source Aquifer.
- The US Gypsum wallboard plant next door, already pipes in precious groundwater from Ocotillo 8 miles to the west. This has resulted in litigation. US Gypsum was supposed to stop using that groundwater when they got approval for 1,000 ac feet of canal water from Imperial Irrigation District. But they need a new pipeline similar to the one proposed for IV Solar Two.
- That pipeline needs a Biological Opinion from Fish & Wildlife, but due to the administration's pressure to fast track renewable energy projects like this one, that Biological Opinion has been placed on hold indefinitely (confirmed May 17 by FWS staff).
- As a result, US Gypsum continues to pump hundreds of acre feet of irreplaceable desert groundwater from a residential area that has no alternate water supply.
- Now this project wants to take another 40 acre feet from them which in my opinion is immoral, unlawful and unethical.
- Here is a quote from the attached July 14, 2006 RWQCB Memorandum, addressed to Donna Tisdale, regarding the proposed US Gypsum Expansion / Modernization Project (EIR/EIS Sch. No. 200112133) and increased export / use of Ocotillo groundwater:

"We acknowledge the Regional Boards limitation to control groundwater extraction/pumping (i.e., lock of jurisdiction over water rights issues). Nevertheless, we feel obligated to weigh in the subject matter because the projected impact is on waters of the State, and the project as proposed practically could eliminate the <u>Municipal Supply</u> beneficial use of an aquifer. The impact may be economically irreversible, is in direct conflict with the Basin Plan, and short-changes water quality. Consequently, it is our intention to recommend the Regional Board use any and all of its available powers to protect the area's groundwater resources for current and future generations."

For example, the Project is in the Salton Sea watershed and, as designed, will result in direct, indirect and cumulative effects on this watershed.<sup>5</sup> For the most part, these impacts were not even disclosed and, 200

O8-15

D-316

## B. GROUNDWATER - DAN BOYER WATER COMPANY

The DEIS unequivocally and repeatedly states that the Project will not rely upon groundwater25 and will rely upon recycled wastewater from the SWWTP. This is simply false, On May 6, 2010, the Applicant docketed information with the Energy Commission and BLM that outlines the Applicant's plan to use groundwater as its primary water supply for the first three years and potentially for the life of the Project. This new water supply, the Dan Bover Water Company, requires a whole new analysis by the reviewing agencies and the public. The Dan Boyer well that would be used for the Project is in the Coyote Wells Aquifer, an aquifer designated by the US Environmental Protection Agency ("EPA") as a "sole source" aquifer.26 This means that the EPA has determined that the Coyote Wells Aguifer is the sole or principal source of drinking water for the communities of Ocotillo, Nomirage, Yuha Estates, and Coyote Wells and that if contaminated, this aquifer would create a significant hazard to public health.27 As a result, all Federal financially assisted projects that could impact the Ocotillo-Coyote Wells aquifer will be subject to EPA review to ensure that these projects are designed and constructed such that they do not create a significant hazard to public health.28 Personal communications with the EPA reveal that this review has not even begun.29 In fact, the BLM had not even contacted the EPA's groundwater office as of May 13, 2010.30

09-11

The Coyote Wells aquifer is currently in overdraft condition, and additional drawdown could potentially result in degradation of the quality of the water for the residents of the surrounding communities that rely upon this aquifer for their drinking water supply. The public should be given adequate notice that this water supply is proposed to be used for the life of the Project. The Project's water supply is a core aspect of the proposed action under NEPA. Because the DEIS does not include any information about this water supply, the DEIS must be revised with a complete analysis of the potentially significant impacts from the use of groundwater in a revised DEIS and must recirculate the revised DEIS for public review and comment.

09-11

### C. CONCLUSION

Both the Dan Boyer groundwater supply and the SWWTP are connected actions under NEPA and, as such, must be studied by the BLM in the same environmental document as the proposed action. Since this was not done in the DEIS, a revised DEIS must be prepared and circulated for public review.

# B. SOIL AND WATER CONDITIONS IN THE REGIONAL WATERSHED

The Project is within the Salton Sea Watershed and soil and water conditions on the Project site directly affect this watershed. Soil and water impacts were identified and analyzed by independent expert hydrologists Dr. Chris Bowles and Chris Campbell. Their testimony is attached to this comment and their opinions are incorporated in the soil and water sections of this comment letter.

As California's largest lake, the Salton Sea supports a multitude of recreational uses and a National Wildlife Refuge and is a critical stop on the Pacific Flyway for migrating birds, including several state- and federal-listed endangered and threatened species. Since the Sea has no outlets, salts concentrate in it and thus the sea is dependent on the continued inflow of freshwater to support it. Currently, the Sea is 25 percent saltier than the ocean, with salinity increasing at approximately 1 percent per year.

The desert washes impacted by the Project provide critical ecological functions such as sediment transport and deposition, energy dissipation and groundwater recharge for the Salton Sea Transboundary Watershed. As explained by the EPA, these important services will be lost or degraded by the Project development. \*\* The DEIR failed to adequately describe the soil and water conditions on the Project in order to provide a baseline to evaluate the Project's impacts.

#### a. Cryptobiotic Crusts

Notably, the DEIS failed to include any analysis of surface soils, including identification of the presence of cryptobiotic crusts on the Project site. It is highly likely that cryptobiotic crust is widespread across the site. So Cryptobiotic crust is a highly specialized community of cyanobacteria, mosses, and lichen and are prevalent in the project area. The living organisms present in the desert soils create a surface crust of soil particles bound together by organic material. The thickness of these crusts can reach up to 10 cm. The crusts are important members of the desert ecosystem and

contribute to the well-being of other plants by stabilizing sand and dirt, promoting moisture retention, and fixing atmospheric nitrogen. (1) Because of their thin, fiberous nature, cryptobiotic soils are extremely fragile systems. Some species in the soil can recover within a few years of disturbance, but slow growing species may require more than a century to recover. (2)

Disruption of the crust will result in decreased organism diversity, soil nutrients, stability, and organic matter. <sup>43</sup> The crusts significantly aid infiltration of precipitation, and anthropogenic disturbance can dramatically increase surface runoff and increase the rate of soil loss by an order of magnitude. <sup>41</sup> Wind erosion is substantially more prevalent with disruption of the crust. Crusts that may remain intact downstream of the project site will inevitably be buried through windblown and water transported erosion. <sup>45</sup>

The BLM must establish the extent of cryptobiotic crust in the affected environment in order to analyze the effect that elimination of this crust will have on the hydrology of the Project site. This information and analysis must also be disclosed to the public, and the Project's impacts on the regional watershed must be analyzed as required by NEPA.

# F. THE DEIS FAILED TO ANALYZE POTENTIALLY SIGNIFICANT IMPACTS TO SOIL AND WATER RESOURCES

As mentioned, Dr. Christopher Bowles and Christopher Campbell independently reviewed the DEIS and concluded that the DEIS failed to analyze a number of potentially significant adverse environmental impacts to the soil and water resources onsite and in the watershed. Specifically, these experts identified significant unanalyzed impacts from sedimentation and

hydromodification; unanalyzed impacts to water quality; unidentified impacts from climate change relevant to project function; impacts from the extensive application of soil binders and potentially significant impacts to the Salton Sea National Wildlife Refuge. The soil and water resources section of the DEIS must be revised to reflect these significant changes.

O9-34

09-14

#### Sedimentation and Hydromodification

The DEIS failed to analyze the potential for significant gully erosion to be initiated by interception of runoff in access road cuts (and trenches) and/or concentrated runoff directly beneath the bottom lip of the solar dishes during intense summer storms. <sup>104</sup> The DEIS also failed to analyze the potential for significant degradation (i.e., incision) of the washes as a result of installing sediment basins. Gully erosion has the ability to deliver significant quantities of sediment to the dendritic network of washes, which, in turn, can significantly impact the morphology of the washes and deliver excess sediments offsite to the further impairment of the New River and Imperial Valley Drains. <sup>105</sup>

The DEIS failed to analyze significant project impacts resulting in increased runoff. The DEIS severely underestimated the amount of impervious surface that the Project will create and likely dramatic changes in the hydrologic functions on the site (i.e., runoff duration, frequency, volume), which, in turn, can significantly degrade the washes. <sup>106</sup> The DEIS did not analyze the impervious surfaces created by site infrastructure (i.e., paved roads, building pads, solar disc footings), hundreds of miles of access road compaction, destruction of desert pavement and cryptobiotic crust, and the widespread application of soil binders. These aggregate changes in impervious surfaces were not considered and can have a significant impact on the morphology of the washes and downstream water bodies. <sup>107</sup> Although small increases in impervious surfaces were perceived to be negligible in the DEIS, these small changes will result in significant impacts to onsite and offsite resources. <sup>108</sup>

### b. Impacts to Water Quality

The DEIS did not consider the water quality impacts of runoff laden with sediment and soluble salts that could be carried with surface runoff from the extensively graded project site. Considering intense rainfall and

subsequent runoff occurs in the summer, these soluble salts could enter the Westside Main Canal, be applied to agricultural fields, only to ultimately enter the Salton Sea through discharge from Imperial Valley drains. [60] Without a detailed analysis of offsite impacts, fine sediments could also reach the New River. [10] This potentially significant impact was not addressed in the DEIS.

O9-35

#### c. Offsite Hydromodification

Potential offsite impacts due to onsite hydromodification were not considered in the DEIS since the DEIS improperly concluded that onsite impacts were negligible. Significant offsite impacts stem from the ability of increased runoff, in terms of higher peaks and larger volumes, to cause more erosion in the washes, thereby degrading the condition of the washes and conveying the eroded sediments downstream. <sup>111</sup> In addition to significant degradation of the morphology of the washes, these impacts include further impairment of the already degraded receiving waters (e.g., New River and Salton Sea). <sup>112</sup>

09-37

#### G. THE DEIS FAILED TO ANALYZE POTENTIALLY SIGNIFICANT IMPACTS TO GROUNDWATER RESOURCES

As mentioned above, the DEIS failed to analyze the use of groundwater (Dan Boyer Well) as the primary source of water for the Project. Given that the aquifer was designated as a sole source aquifer by the EPA in 1996 and is currently in an overdraft deficient status with static water levels declining on average of 1 foot every five years, it is difficult to fathom how this project would not further contribute to the groundwater deficit and lowering of the water table, which is not even acknowledged as an impact. The DEIS must analyze the Project's potentially significant direct, indirect and cumulative impacts to groundwater resources.

09-41

19. In my efforts to respond to the Alternative Water Supply, I have documented considerable information which either contradicts what the Applicant states about the Boyer water well 165/9E-3-66/4 in Ocoillo or fails to substantiate assertions made by applicant or applicant's consultants related to groundwater usage at the well site. Those letters and their accompanying exhibits are included as Exhibits 366 and 513-564.

- 38. Project does not have an assured water supply and there is inadequate up to date information on the proposed alternative water supply for any agency decision other than to deny. The question of an assured water supply and what it means to others who have relied on that source if groundwater. I have submitted a detailed analysis with many exhibits on the alternative water supply as a witness for Intervenor Tom Budlong at the CEC Evidentiary Hearings. Yes, there is repetition, and there may be some typos not yet found, but I am submitting them as exhibits for the comments on the SA/DEIS. (See Exhibits 566 and 567.) (The letter to the US ACE is submitted as Exhibit 572.)
- 39. SA/DEIS at c.7-3 states that "No groundwater would be used by the project and the effect on groundwater infiltration would be negligible."
- 40. Project appears now to have no assured water supply. Seeley WasteWater Treatment Facility is in process of doing an EIR for upgrade and to address impacts of loss of outflow to wetlands along New River and could not be ready to deliver water for construction when applicant wants to start...driven by desire to get federal monies.. May 5th Applicant's Supplemental AFC now identifies use of potable groundwater from Ocotillo by tank trucks for construction, dust suppression and mirror washings. However the documentation provided by the applicant for the hydrology and groundwater issues is more than woefully inadequate given the absence of monitoring information, pumping information and water quality information for the well in question and the nearest wells the US Gyrsum wells.
- 41. We learned that there is no valid permit to export water from the proposed well as of yesterday May 25th, 2010 at the Evidentiary hearing.
- 42. If groundwater were to be approved, it could/would eliminate source of domestic water for residents of Painted Gorge and West Texas who were identified as using this source in documents dating since 1996 and likely much earlier. So much for the CA hierarchy that puts domestic use as a higher priority than industrial or commercial activities. No one could answer the question about what happens if current domestic users lose their supply. Applicant intends to take all the water pumped from the well. The groundwater is from a US EPA designated Sole Source Aquifer, which means that in 1996 when EPA made the determination it recognized the

water availability/water quality problems that are associated with the area where groundwater users get water for all needs. Derailed information and questions about the Boyer Well will be appended at the end of this comment letter.

- 43. The 2/2010 SA/DEIS document identifies the Seeley Waste Water Treatment Facility (SWWTF) as an intended source for 150,000 to 200,200 gallons of tertiary treated water for construction and operation (ES-4). The environmental impacts of use of this water have not been fully evaluated because there has not been any real discussion of what losing the outfall of treated wastewater would mean to the wellands now receiving the water.
- 44. When it comes to water I am wondering (ES-6) what is meant by the statement that the daily water requirement for SunCatcher mirror washing ..., would be approximately 10.4 gallons of water/minute." If 30,000 SunCatchers that sounds like 0.96 AF/min, but again what does this really mean in terms of water usage.

P11-24

Water well issues related to the Boyer well and the Ocotillo-Coyote Wells groundwater basin:

- 80. The monitoring data and information about water wells that was used by USGS for its 1977 report on the groundwater basin raised much interest and concern among residents of the groundwater basin. And can be summarized as follows.
  - The County Dept. Of Public Works provided to residents copies of the 1977 USGS
    Groundwater study and model that was locally called the Skrivan Report. (Exhibit 537,
    USGS 1977)
  - b. Some time after the USGS made its presentation to the Board of Supervisors, and during a public hearing, I challenged the reliability of the computer model because USGS water level monitoring data for the domestic wells in Yuha area and the well that was exporting groundwater showed that there was a significant decline in water level centered at the export well
  - c. USGS staff agreed with my conclusion that when the computer model cannot predict what the monitoring data shows, that it is the computer model that is inaccurate not the monitoring data.
  - d. I was provided with computer print outs of water level and water quality monitoring data from USGS and a USGS printout that provided information on well construction, location, and ownership (Exhibit 553) that was included in the 1977 USGS Report (USGS 1977 Exhibit 537 and 553).
- 81. Water levels and water quality issues in the groundwater basin have been a growing and continuing concern for groundwater users for more than three decades. In fall 1977 I moved from Oceillo to Yuha and was caretaking a property immediately south of a well which had started to export groundwater in September 1977. In 1977 all the homeowners because very concerned because in September 1977 tank trucks began lining up, leaving engines running and filling with water at all hours of day and night from the Simpson-McDougal well at the center of the 160 acre subdivision in addition to lining up at the well in Ocotillo. Residents were concerned, and when USGS came to monitor wells, residents learned water levels were showing signs of decline.
- 82. The 1977 USGS study that residents and the County were concerned because the USGS study revealed that:
  - a. Water levels were declining where the residential development was.
  - b. All groundwater pumping in the basin was located in a relatively small area or private land because most land is owned by federal govt BLM (See ONCAP Exhibit 517, Fig 1 after text, and Exhibit 562 a figure depicting location of wells on private lands)
  - c. 90% of annual pumpage is centered in Ocotillo (Exhibit 537 p.1, 45)
  - d. overdraft or groundwater mining because groundwater levels are declining (USGS 197, 7 Exhibit 537 p. 35) and discussion by USGS at County meeting
  - large cones of depression of water levels centered around and downgradient from wells that
    were pumping 100 AFTY or more of groundwater in locations relatively close together
    (USGS 1977, Exhibit 537 Fig 12, pp. 38-39)
  - f. concern about saline intrusion or migration of highly saline groundwater from the east side of the . (USGS 1977, Exhibit 537 p. 1, 20, 41.)

- g. Some wells in residential areas have poor quality water or high fluoride levels (USGS 1977, Exhibit 537 Fig. 6, pp 18-19)
- h. USGS report stated that when it was prepared that there was only one well exporting water to Mexico, that was well 16S/9E-25X2 in Ocotillo (USGS 1977, Exhibit 337 at p 14) but a second well 175/10E-1161 had started to export to Mexico in September 1977. USGS report had not considered impacts of this export because it was not exporting water at the time the report was completed and/or the County had not told USGS that there was a second well exporting groundwater from Yuha Estates.
- 83. The USGS report discussed overdraft and showed local cones of depression where water levels were lower where wells were pumping more than for single family use. But, additionally, there other studies or analyses that addressed these concerns during years when there was ongoing litigation. Important new insights related to how groundwater basin was responding to pumping came to light in these additional/subsequent reports.
  - a. Huntley 1979 described significant well interference in locations where groundwater pumping exceeded 100 AFFY and declining water levels in spite of years one might consider above average recharge based on rainfall (Huntley 1979 p. 11, 21 Exhibit 549)
  - b. Huntley expressed concern about the computed overdraft or depletion as seen by declining water levels, and "continued uncontrolled pumping" which "suggests that the ground water resources of the basin are seriously overallocated." (Huntley 1979 p. 21 Exhibit 549)
  - c. Huntley was further concerned that the USGS report tended to "underestimate the problems of overdraft in the Ocotillo-Coyote Wells basin." (Huntley 1979 p. 21 Exhibit 549)
  - d. Zipp from the State Water Resources Control Board prepared a report for a hearing of the RWQCB and noted that the basin (a very large area of mostly BLM lands) was not in critical condition of overdraft, but that there were several local cones of depression around major extraction areas. (Zipp 1980, Exhibit 554 p. 19)
  - c. 80% of water pumped in basin is exported from the basin. County should use hydrologic boundaries not political boundaries to define basin. ..."all extractions from basin by US Gypsum must be considered as exports because water is taken across the fault into poor quality. unusable area." (Zipo 1980 Exhibit 554 p. 7)
  - Cones of depression in Ocotillo, Coyote Wells, and Yuha Estates areas have resulted in well interference. (Zipp 1980, Exhibit 554 p. 19)
  - g. There is no evidence of recharge despite years of heavy rainfall, (Zipp 1980, Exhibit 554 p. 19)
  - Additional export of water from the areas affected by well interference will only intensify the problem. (Zipp 1980 at p.19)
  - Deepening of the pumping cones may induce poor quality water upward from the deeper zones." (Zipp 1980 at p.19)
  - j. Huntley 1993 in response to my observation that one well exhibited an increase in chloride level which his court testimony had stated could be an indicator of saline intrusion, prepared a report for the APCD in response to a request by US Gypsum to increase the amount of groundwater it exported. (Exhibit 548)

- k. Huntley discusses "local degradation [of water quality] in response to overdraft in the Ocotillo area" at the export well 16S/9E-25K2. (Huntley 1993 p. 1, Exhibit 548)
- "Groundwater level information suggests that local overdraft conditions continue to exist
  within the Ocotillo-Coyote Wells basin, despite decreases in production from wells." USGs
  monitoring data indicated declining water levels including from US Gypsum well 36H1
  contrary to the information provided by USG. ((Huntley 1993 p. 2, Exhibit 548)
- m. Huntley recommended that US Gypsum groundwater production should not exceed 380 AF/Y. (Huntley 1993 p. 2, Exhibit 548)
- 84. Imperial County updated its General Plan in 1993. The updated General Plan affect planning for the Octillo-Coyote Wells Groundwater basin planning area in the following ways related to groundwater usage.
  - After lengthy input and community meetings, in 1994 the Board of Supervisors adopted the Ocotillo/Nomirage Community Area Plan (ONCAP) as a part of the Land Use Element of the General Plan. (Fxbitis 517)
  - b. The intent of the County in preparing the ONCAP "is to maintain and protect the existing rural character of the area and to preserve its natural resources." (ONCAP p.2)
  - c. Text notes that "The entire planning area is dependent on groundwater. Historically, water has been of good quality. Recently, however, data seems to indicate a possible decline in water quality in some areas of the basin." (ONCAP p. 4)
  - d. The ONCAP states that: "Preservation and conservation of groundwater is one of the major concerns of the Ocoillo/Nomirage Community Area Plan. Water use, quality, quantity and protection are key issues in planning for the area. All land use proposals shall be reviewed to determine their impacts on groundwater quantity and quality." (ONCAP4)
  - e. Protection of Environmental Resources lists Objective 5.3 "Protect the groundwater in the Ocotillo/Nomirage Community Area from overdraft and saline conditions," (ONCAP p. 10) Objective 5.4 "Ensure that new development proposals do not contribute to overdraft or increase salimity of groundwater." (ONCAP p. 10) Objective 5.8 Work with IID and US Gypsum to examine other water sources and reduce their dependence on groundwater. (ONCAP p. 10) Objective 5.10 "Impose a limit of 1.5 acre-feet of water per dwelling unit in the Ocotillo/Nomirage Community Area." (ONCAP p. 10)
  - For the Community Vision Objective 7.2 says: "Ensure that future growth and development is orderly, safe and does not cause overdraft, contamination or increase salinity of the groundwater aquifer." (ONCAP p. 11)
  - g. The ONCAP specifically requires a site specific geohydrology study for any project or property intending to use more than 5 acre/feet/year or for any subdivision to be served by groundwater. (ONCAP 14, 15, 16, 17).
  - h. Under Commercial Development the ONCAP states that: "It is the intent of the plan to maintain the existing character of the community by discouraging regional commercial land uses in order to preserve the groundwater resources from overdraft and contamination." (ONCAP 22)
- 85. Did the ONCAP 's only reference to the well at the Boyer property (formerly the WestWind Water Company) is found on ONCAP p. 4 ONCAP did not say anything about export of water from this property to Mexico or state how much water us supplied to the residents of Painted

#### Gorge.

- a. ONCAP in discussion of existing conditions related to water mentions the "West Wind Water Company (Elfring) which supplies Painted Gorge residents." (ONCAP p. 4) The West Wind Water Company is now known as the Boyer well.
- b. There is no information about how many homes there are in Painted Gorge or in West Texas which is just to the east of Coyote Wells. Also no information about how many permanent residents live in those places. In the ONCAP, However, information about hat water usage at West Texas and Painted Gorge is found in the BE 1996 and 2004 reports for US Gypsum.
- 86. After the ONCAP was approved and residents had learned more about groundwater issues and seen how other communities tried to protect their groundwater basins from over-development or degraded quality, local residents were inspired by the efforts of the residents of Boulevard after their groundwater basin was designated as a Sole Source Aquifer by US EPA.
  - a. USGS report and other studies all showed that the groundwater basin was the only source of water for all domestic needs of the communities overlying the groundwater basin, and reports warned that overpumping could result in the degradation of water quality if water levels continued to decline.
  - b. In May 1994, residents began working together to apply for Sola Source Aquifer status with the aid of a pro bono attorney who lived in the community.
  - c. In September 1996, the Ocotillo-Coyote Wells basin was designated as a "Sole Source Aquifer" by EPA in 1996, and because of that designation, any project for which there is any federal money to be spent would require a serious study by US EPA and USGS to determine impacts and mitigation for impacts on the SSA. (Exhibit 515.)
- 87. What is the significance of Sole Source Aquifer designation?
  - a. The EPA determined that the Ocotillo-Coyote Wells Aquifer in SW Imperial County CA "is the sole or principal source of drinking water for Ocotillo, Nomirage, Yuha Estates, and Coyote Wells and that this aquifer, if contaminated, would create a significant public health hazard." (EPA 1996 at p. 47752, Exhibit 515)
  - b. "There is no economically feasible alternative drinking water source near the designated area," (EPA 1996 at p. 4775, Exhibit 515)
  - c. The designation is important because the EPA made its designation based on hydrologic boundaries with the Elsinore Fault marking the northern boundary and the Laguna Salada Fault along the eastern boundary (as recommended by Zipp 1980) rather than using a political boundary to include Plaster City factory as did USGS 1977 presumably at County request.
- 88. Groundwater basin come from fossil water. Several reports state that there is recharge to the basin from the Jacumba Mountains and Coyote Mts Wilderness areas, but there is very little rainfall in these mountains. There is also supposed to be some recharge to the basin when water in Myer Canyon is flowing if there is runoff in the mountains to the southwest of Ocotillo. However,
  - a. No water level monitoring of wells overlying potable waters done by USGS since the 1977 report has shown any increase in water levels in wells even though there have been three 100 year storm events that caused flooding from the Jacumba Mountains, in addition to several years of above average rainfall associated with El Nino years.

- b. My discussions with John Izbicki, PhD of USGS water Resources Center in San Diego over the years leads me to the understanding that the water in the basin is "fossil groundwater" that is a remnant of a different weather and climate pattern toward the end of the last ice age, perhaps 10,000 to 100,000 years ago.
- c. Groundwater in other desert groundwater basins has been dated and is tens of thousands of years old according to published research by Dr. Izbicki. From Dr. Izbicki and others at USGS I have learned that when the water is gone, it is gone because there is no longer enough rainfall to wet a dry column of soil in many places several hundred feet below the surface.
- 89. Based on information in technical reports and my own analysis of monitoring data from USGS, I am concerned about the potential for declining water levels and degradation of water quality for downgradient domestic wells in the Nomirage area based on changes already observed in wells monitored in other nearby parts of the groundwater basin.
  - a. Based on my review of USGS monitoring data and the studies that have been done, I am concerned that if US Gypsum and other nearby wells are permitted to export or extract 100-200 AF/Y from the existing large capacity wells that water levels will continue to decline and that there are inadequate protections /ineffective mitigation measures / inadequate and unimplemented monitoring which could do anything to protect residents of Nomirage from serious water quantitivequality problems?
  - b. The Boyer well is the closest well to the USG wells.
- 90. Why the concern about impacts of pumping near the SE part of Ocotillo on the community of Nomirage?
  - a. The Graham well near the center of Nomirage was unable to supply the needs of the Nomirage subdivision decades ago, so all dwellings had to pay to put in private domestic wells to serve each family, even though the subdivision was intended to have a single water supplier such as in the community of Cootillo a few miles to the NW.
  - Depths to groundwater near and in parts of Nomirage are relatively shallow according to USGS 1977 and USGS subsequent water level monitoring (See Exhibit 516 for a table with water levels)
  - c. The Nomirage area does not respond to pumping the same way as do the larger capacity wells in Octillo. Water quality in the Nomirage area is highly variable today with considerable difference for one well to another even on adjoining lots. Water level declines in Nomirage are on a continuum and static water levels are mush lower than in Octillo. (See details in Exhibit 516, the table I prepared for comments on the 2008 Final EIR/EIS for the US Gypsum project.)
- 91. The major past or proposed groundwater concerns for the community of Nomirage follow:
  - Failure of County to adequately and seriously consider impacts of commercial and industrial scale projects on Nomirage
  - b. Past proposal to create a sand and gravel operation on lands adjacent to the SE part of Nomirage, finally denied by Supervisors in November 1998. White Gravel pit would have intersected watertable if permitted and been the first sand and gravel operation in the State of California to be approved on lands designated for residential development.
  - c. Continued or increased groundwater extraction for export from 3 wells owned by US

Gypsum to east and southeast of Ocotillo . County approved US Gypsum expansion and increasing groundwater export in 1998 without requiring any groundwater study as required by the ONCAP. That decision was challenged in Court in January 1999 and still has not bee resolved.

- d. Proposal by Wind Zero Group for a military style "law enforcement training facility" and 6.1 mile competitive race course, and luxury townhomes and resort hotel called Coyote Wells Specific Plan (CWSP) on about 944 acres immediately adjacent to Molitar Road, the eastern boundary of Nomirage.
- c. CWSP project has a FEMA designated floodway going through property and nearby wells have poor quality water. Applicant proposed to use anywhere from 67 to 87 or more AF/Y of groundwater from 2 wells on-site My calculations of the uses suggest closer to 126 AF/Y. CWSP DEIR suggests that even more groundwater might be needed. ( )
- f. And now the proposal for the Boyer well upgradient of Nomirage to be used as an Alternative Supply of Water for the Imperial Valley Solar/Solar 2 Project pumping 40 AF/Y, but asserting a need for 50 AF/Y during construction.
- 92. There have been other studies or reports on this groundwater basin that have raised concerns about the potential for adverse impacts of increased groundwater pumping. And I have submitted written comments on those projects for different organizations and community groups.
  - a. El Remate 1990 proposal to pump about 1000 AF/Y in the vicinity of Sunrise Butte along the Laguna Salada Fault in the SE part of the basin. Against the recommendations of its own consultant, the County approved a permit for pumping about 600 AFY. I submitted comments for the Ocotillo Community Council and Exhibit 562 is one of the maps I prepared to depict geology and well location and extent of private property, and the distance to which the cone of depression would extend, even upgradient. Lawsuit followed and project was abandoned. County decided to Update its General Plan.
  - b. White Pit project adjacent to Nomirage. It took about 5 years for community to convince County to deny this ill-advised project. Land is now for lease.
  - c. US Gypsum expansion project. USG first wanted to increase its groundwater pumping in 1993, then again in 1998. Huntley had recommended that USG's pumping be limited to 380 AFY. I commented on project and problems at Planning Commission on behalf of Sierra Club. After County approved the project without requiring an EIR. Sierra Club filed a lawsuit and the Court of Appeals decision required preparation of an EIR. See Exhibit 538.
  - d. Recently in 2010 the Wind Zero Group's Coyote Wells Specific Plan for law enforcement training, competitive racing, luxury housing and resort hotel on property through which a FEMA designated floodway passes has raised lots of concerns about groundwater impacts. 1 submitted comments on behalf of Sierra Club's San Diego Chapter, the CNRCC Desert Committee, and Desert Survivors.
  - e. The 2009 Ocotillo Express Wind Facility also proposed to use groundwater from undisclosed sources for construction of the wind turbans, using 22,000 gallons of groundwater for each of the 240 wind turbines. Turbines are planned for north and west of Ocotillo and west and south of Nomirage. (See Exhibits 525 and 529 for locations of wind turbines and estimates of water usage...)
  - f. Further away near the Coyote Mountains are Granite Construction wells are pumping water

for the sand and gravel operations.

- g. Then the proposal to use water from the Boyer well in a quantity in excess of the total permitted quantity, and from a well which is currently serving residential users..
- 93. What have I learned things from reviewing all these Draft and Final EIR/EIS documents that raises concerns about groundwater studies and the potential for success of proposed mitigation measures related to any groundwater pumping?
  - a. First, is that applicants always seem to submit studies that were prepared several years prior to the release of the Draft EIR/EIS and have somewhat outdated USGS monitoring information. It doesn't matter who the applicant is.
  - b. Preparers of EIRs and County do not consider the implications of the fact that US Gypsum could not prove that it ever pumped as much as what it told USGS and the County. See discussions about the "US Gypsum variance" which is the difference between the water used at the plant based on production and the amount reported as being used by US Gypsum to USGS and County. This was described both in the Bookman-Edmonston 1996 study, in the DEIR and in the decision of the Court of Appeal.
  - c. The studies for the USG DEIR/S and FEIR/S do not make reference to this discrepancy in groundwater export to the factory or explain how such a 40% discrepancy might affect the conclusions of the USGS 1977 Report or any other groundwater reports.
- 94. Failure to ignore the discrepancy between what USG likely pumped and what it asserted it pumped is so great as to raise concerns about groundwater basin responses to pumping. Why is this important?
  - a. Water levels have continued to decline since the 1977 USGs report and computer model. But what would the estimates of water level and water quality change be if the estimates were based on about half as much pumping as reported?
  - b. Would this mean that the groundwater basin is far more sensitive to smaller amounts of pumping than previously thought? If the basin or parts of the basin are more sensitive/respond to lower levels of pumping with declining water levels or changes in water quality?
  - c. Do the documented changes discovered by USGS monitoring mean that the problem of well interference is even greater than earlier thought?
  - d. What might happen if USG were to pump the quantity it wants, and what about the cumulative impacts of pumping at nearby wells?
- 95. Information about the Boyer Well 16S/9E-36G4 when learned when reviewing materials provided by the Applicant raises concerns about impacts if the well were to be used as an Alternative Water Supply for IV Solar. Specifically.
  - a. IV Solar proposes at different places to use 40 AF/Y, or approximately 50 AF/Y. (Supplemental Application for Certification at pp 1-2, 1-3)
  - However, the well is only permitted for 40 AF/Y, but applicant proposed to use 10 AF/Y more than the permitted amount for all uses. (SAC 1-3)
  - c. The temporary nature could be for 6 to 11 months (Appendix D) or 6 months to 3 years (SAC 1-3), or for the lifespan of operations (if needed). (URS App. D Groundwater Evaluation at p. 6-1)

- d. Well 168/9E-36G4 is used for "personal use or personal consumption (SAC 1-2), but there is no indication of how many residences are served or how much water is provided for the residential needs of residents of West Texas and Painted Gorge as was noted in the BE 1996 and 2004 hydrology studies for the USG DEIR/S of 2006.
- e. If IV Solar is approved to use 100% of the output of the Boyer well, what will happen to domestic uses by residents of Painted Gorge and West Texas that have historically been met at the Boyer well?
- f. Applicant asserts that the well typically extracted over 100 AF/Y, but provided no documentation to support that assertion.
- g. The only documentation for water sales is from the period part of 1990 through June 2004. (Appendix D)
- h. Neither the 1977 USGS Report, the 1979 Huntley report, 1980 Zipp study, 1993 Huntley letter or 1994 ONCAP contain any statements to suggest that the Boyer well was exporting groundwater or pumping any quantity near 100 AF/Y. Because all of those documents were concerned with groundwater usage and identifying the largest centers of pumping, it seems unlikely that the Boyer well was doing much pumping without being noticed by the County or USGS, especially if there were about 40 trucks/day until 1982 as indicated in the Bammer 7-32-7004 letter. In Appendix O
- Where is the data to support such a claim? Is there documentation or is it simply a claim without basin such as USG's assertion of pumping up to 767 AF/Y?
- j. Planning Dept response to Brammer letter suggests that County also did not accept that assertion because there was no documentation. (Exhibit 565, referred to in sworn testimony by Harmon and Planning's Jim Minnick during Evidentiary Hearing on May 25, 2010.
- k. Water level monitoring and water quality data where available suggest that the Boyer well responds in a manner suggestive of well interference and changes in both water level and water quality in wells on the Boyer property raise many questions.
- Why were water levels in 36G4 lower than in the USG well 36H1 which is downgradient?
   It is assumed that the USG well pumped more water than 36G4. (Exhibit 555)
- m. Why did the static water level in 36 H1decline 6.7 feet between 2004 and 2005 when the well? (Exhibit 555)
- n. Why did water level in 36H1 decline 14.73 ft between 1996 and 2005? (Exhibit 555)
- The Westwind table reveals that between 1994 and 1995 when only 7.5 AF was pumped in 1994, that the static water level in the well 16S/9E-36G4 declined by 16.25 ft. in one vear. Why?
- p. In 2010, the static water level for well 16S/9E-36G4 was 3.27 feet lower than in the nearby USG well 16S/9E-36H1 (USGS monitoring) which was expected to have pumped far more water than the Boyer well.
- q. Which is the center of the cone of depression and/or what is the role of well interference?
- r. At one of the wells on the Boyer property (168/9E-36G1) there was a marked change in water quality when the water quality was monitored between 1958 to 1975. The amount of total dissolved solids (TDS) steadily increased from 341 mg/l to 635 mg/l during that 17 year period. Why? How much was it pumping during that period? How much were any of

the USG wells pumping at that time?

- s. Wells in this location appear to have rather dramatic responses in water level and water quality with only a small amount of pumping
- Both at the Clifford 16S/9E-25K1 well in Ocotillo and McDougal 17S10E-11G1 well in the Yuha, increased pumping for export lead to declining water quality as measures by increased total dissolved solids?
- 96. It has been stated that the residents of Painted Gorge and West Texas get water trucked from the Boyer Well. It is uncertain how many people live there now. There are reasons related to water quality is different portions of the basin that explain why they get water from the Boyer well.
  - a. The 2004 Bookman-Edmonston "Ocotillo-Coyote Wells Hydrology and Groundwater Modeling study" that was included as a Technical Appendix to the US Gypsum Draft EIR/EIS as Appendix B-2 includes two tables and two pages of information about the Painted Gorge and West Texas water issues at pp 4-4 to 4-6. (See Exhibit 563 re BE 2004 information about Painted Gorge, West Texas and WestWind Water company. Exhibit 564 is information from the B-E 1996 report.)
  - b. Table 4-3 estimates the population in 2010 for Painted Gorge to be 50 persons and West Texas as 13 persons, or a total estimated 2010 population without potable drinking water as 63 persons. (BE 2004 at p. 4-4)
  - c. "Westwind Water company is also located in Ocotillo and provides water by privately owned trucks to Painted Gorge, West Texas, and construction sites in the area. Groundwater underlying Painted Gorge is unsuitable for drinking and all water must be trucked in. Groundwater underlying West Texas is suitable for bathing and landscape irrigation, but drinking water must be trucked in." (BE 2004 at p. 4-5 and Exhibit 564)
- 97. There is no documentation of how much water is supplied to those residents from the Westwind/Boyer well available for public review. Alternatively, I coule find no information that might permit one to estimate how much water trucked in from the Boyer well might be used
  - a. I can find no information about water usage in Painted Gorge and West Texas in materials
    provided by the IV Solar applicant or information supplied by Boyer. If included it was not
    readily located.
  - b. However, the 2004 BE appendix in the 2006 US Gypsum DEIR/S Table at p. 4-4 for applied water usage suggests that residents in those areas might be using/hauling 60 gal/day/person. Using that figure 63 persons x 60 g/dx 365 days =1.379,700 gallons or 4.23 AF/Y. (See BE 2004 at p. 4-4; Exhibit 563)
- 98.1 am concerned about what would happen if those residents are no longer permitted to obtain water from the Boyer well because it would be used at the IV Solar project site. Where would they get water?
  - a. It appears that the WestWind /Boyer well has long provided water for those parts of the community and that such use was documented in the 1996 E-E study done for the USG DEIRS.
  - b. I do not think that the Mutual Water companies would be permitted to provide a permanent supply of water for those who are not shareholders.
  - c. It is a matter of environmental justice that residents of those areas not be denied their

traditional water supply in favor of export of water from the Boyer well for construction and mirror washing at the proposed IV Solar Project site near the USG Plaster City factory.

99. The pump test information supplied by URS raises questions.

- a. Given the historic declines in static water level over a one year with limited pumping what was the nump test run for only one 8 hour day rather than for several days?
- b. I ask this because the recovery after 17 hours left water in well still 2.98 feet below what it was when pumping started. (URS at 3-2) What might the results have been if pumping on the second day started with water at a depth almost 3 feet lower than when pumping was initiated?
- c. Why was there no effort made to get a water level measurement at the nearest well?
- 100. 1 have concerns about the significance of the pump test based on knowledge of other pump tests in the basin.
  - a. Computer models and projections about the nature of impacts from pumping about 100 AF/Y from a well surrounded by domestic wells in Yuha Estates were more than overly optimistic and monitoring data could not be replicated by any computer model, even the most Recent.
  - b. Check the information in Exhibit 516 for the McDougal Yuha well which exhibited a dramatic decline in water level which also caused in declines in water levels in all measured domestic wells. Our well 175/10E-11H3 (replacing 11H2)( which was less than 1000 ft from the export well 11G1)showed a decline in water level of about 30 feet in a 5 year period. The water level has been recovering ever since September 1982 when export pumping stopped. (See Exhibit 564 with figures depicting the cones of depression centered at Octolilo and Yuha.)
  - e. All computer models had indicated that there should be no adverse impacts from pumping 100 or more AF/Y. See Exhibit 516 to see change in water levels.
  - d. It is my recollection that when pump tests have been done in the past, that water levels were monitored in the nearest well. But I was unable to find the test results.
- 101. For the Boyer well, there is already existing information suggesting that the well is more sensitive to pumping than being asserted by the applicant and those were not addressed by URS information provided by Robert Scott, the URS geologist who prepared the "Groundwater Evaluation Report Dan Boyer Water Company well State well No 165/9E-3664" dated 26 April 2010 for the IV Solar Alternative Water Supply assessment.
  - a. Why did URS rely on the outdated January 2004 hydrology report by Bookman-Edmonston for the US Gypsum EIR/EIS project without providing more recent USGS monitoring data?
  - b. Why submit the hydrology text from the 2006 DEIR/EIS for the US Gypsum expansion project which appears to include monitoring information and tables with information no more recent than 2000, 2001, or 2003?
  - c. Why didn't URS update the studies with USGS water level and water quality information available on the internet through spring 2010?
  - d. What are the URS explanations for the interesting changes in water levels and water quality observed in the Boyer and USG wells?
  - e. Why didn't URS obtain the pumping amounts for each of the three USG wells and why did

- it fail to provide water quantities pumped from the Boyer well for the past 5 years? What analysis might be drawn if information on water levels and amounts pumped for all the USG wells AND the Bover well.
- f. Why does URS include Fig 1 with well locations but fail to include the location of all the USGS monitored wells? Why was well 16S/9E-34B1 to the west of Ocotillo not shown"
- 102. Why is the information about well 34B1 important?
  - a. Because it is the furthest west well, closest to the supposed recharge coming from the mountains, but in 2009 it had a static water level (253.21 AMSL) that is about 15.71 ft lower than the 2009 static water level in the Ocotillo Mutual Water Company (well 16S/9E-25M2) (268.92' AMSL) that is to the east. What is the explanation for the upgradient well to have a lower static water level than those that are pumping more and are located down gradien?
  - b. Without answering some of these questions it is not possible to determine whether or not and to what extent the proposed alternative source of water would have a significant cumulative impact on downgradient domestic wells located within the growing and deepening cone of depression SE of Ocotillo.
  - c. Why was no information presented to indicate the success or failure of the groundwater related to the implementation of the various mitigation and monitoring measures that are part of the USG approvals from Imperial Country in 2006?
  - d. Were the new monitoring wells drilled, if so when and by whom monitored?
  - e. Why was there no discussion or identification of other wells pumping more than a few AF/Y to makes some king of consideration of cumulative impacts analysis? Wells such as the Ocotillo Mutual and Coyote Valley Mutual, Wind Zero, Atlas Storage, and Ocotillo Express Wind Facility and sand and gravel operations?
  - f. This is especially concerning when the duration of the alternative water supply use was found in at least two places to state that the duration could be for the lifespan of operations.
- 105. The IV Solar Project might also have an adverse impact on the groundwater basin/sole source aquifer by forcing the solar project biological resources review to a priority position ahead of completing the biological opinion related to making it possible for US Gypsum to start reducing its export of groundwater and being using Colorado River. This is a serious but unintended consequence of making renewables issues a higher priority than other projects for the FWS?
  - a. It seems obvious that in addition to the concerns about using the Boyer well as a water source for the project, the Solar project is effectively delaying the initiation of actions for USG to use Colorado River water. This continued export of potable groundwater for use in wallboard manufacturing represents an adverse impact on the groundwater basin and allows for continued pumping in the location that is very close to the center of the cone of depression.

P11-35

## D.4.13.1 Temporary Use of Well Water for Construction and Initial Operations

As discussed in Section D.4.16, below, and in detail in the Final Environmental Impact Statement (FEIS) in Chapter 4, Environmental Consequences, and in Appendix B, Determination of NEPA Adequacy (DNA), the Imperial Valley Solar (IVS) project, the Agency Preferred Alternative, and the other Build Alternatives were modified after the publication of the SA/DEIS to use an off site well as a temporary water source during construction and initial operations. The use of water from the existing permitted Dan Boyer Water Company well to provide water to the site is proposed until the Seeley Wastewater Treatment Plant (SWWTP) can provide the water to the site.

It is expected that the IVS project would require water from the Dan Boyer Water Company well for 6 months to 3 years. The water would be transported to the IVS project site in 7,000 gallon water trucks. Based on the expected construction demand of approximately 50 acre-feet-per-year (afy) on average, it is anticipated that up to 13 truck trips would be required per day. If the well water supply is used during initial project operation, a maximum of 7 truck trips per day would be required to supply the approximate 33 afy demand for operations. Once on site, the water would be stored for construction and/or operations use.

The analysis of the use of the well water is described in detail in the DNA in Appendix B in the FEIS.

#### D.4.13.2 Water Supply

The water needs for the IVS project are described above. The Dan Boyer Water Company is a private water purveyor located at 1108 Imperial Avenue in Ocotillo, approximately 3.5 miles (mi) southwest of the IVS project site and 7 mi by road as shown on figures provided in Chapter 2, Alternatives Including the Proposed Action, in the FEIS. The Company operates State well #16S/9E-36G4 with a current permitted pumping rate of 40 afy. The well water is potable and permitted for use by construction or personal consumption. Historically, the well has typically extracted over 100 afy for uses such as construction, dust control, and personal use. The Dan Boyer Water Company had indicated its intent to temporarily furnish well water to the IVS project.

The source of water for the Dan Boyer Water Company well is the Ocotillo Wells, which is a United States Environmental Protection Agency (EPA)-designated sole source aquifer. The water supply capability of Ocotillo Wells is described in the Supplement to the Imperial Valley Solar (Formerly Solar Two) Application for Certification (URS, May 2010).

#### D.4.13.3 Erosion, Soil Runoff, and Hydromodification

The SunCatchers would be mounted on a pedestal foundation. Those foundations would consist of a metal fin-pipe hydraulically driven into the ground. This type of foundation requires no concrete, generates no spoils, and can be completely removed when the project is decommissioned. The metal fin-pipe foundation eliminates conventional drilling techniques that would generate soil cuttings, require dust suppression, and require the trucking and disposal of the cuttings. However, when conditions are not conducive to the use of the metal fin-pipe foundation, the foundation would consist of rebar-reinforced concrete constructed below grade.

Although the SunCatcher arrangement would be designed to fit the local contours of the site, the density of dishes and the arrangement in straight parallel rows would result in many SunCatchers being installed into flood hazard areas and channels. It is estimated, using a rough grading plan and flood hazard information provided by the applicant, that approximately 5,150 SunCatchers would be placed in flood hazard areas, including active channels. The actual number of SunCatchers subject to flooding is expected to be higher considering the flood-prone areas not mapped on the soil and water resources figure in the SA/DEIS.

Based on the information from the applicant, the total land area disturbed by the construction of the SunCatcher field would be approximately 3,160 square feet per SunCatcher, including the SunCatcher installation, road construction, clearing, and grading. Assuming a minimum of 5,150 SunCatchers in flood hazard areas, the total construction disturbance for the 30,000 SunCatcher array would be at least 374 acres (ac) in floodplains. Approximately 164 ac of this would be permanent disturbance in the form of roads and SunCatcher foundations. The actual floodplain disturbance is expected to be greater due to features placed in flood hazard areas not mapped by the applicant.

During operation, disturbed and cleared areas, primarily within the SunCatcher field, would be subject to increased erosion potential due to the removal of vegetation, the removal of desert pavement, the disturbance of the surface crust, and the placement of SunCatcher foundation poles in the flow path. The result of surface disturbances and the presence of SunCatchers in the flow path could be long-term erosional degradation of the soil surface within the SunCatcher array and in the intervening undisturbed areas, as well as increased sediment discharge off-site across Dunaway Road and toward the east where the Westside Main Canal and New River flow

SunCatcher foundation poles in the flow path would create local areas of flow turbulence, resulting in local stream scour around the foundation poles. Scour such as this occurs on bridge piers, resulting in the need to bury bridge piers to a depth below the depth of scour to ensure stability. SunCatchers subject to scour could also become unstable if the scour is deep enough

to undermine the structural foundation, resulting in collapse and potentially damaging and polluting the ground surface with mirror fragments and other SunCatcher debris.

The SunCatcher foundations will be buried to a sufficient depth to protect against 5 feet (ft) of scour. Using hydraulic information from the HEC-RAS analysis for the project, and the assumption of a 2-ft diameter foundation, that total 100-year scour at SunCatchers would be 5 ft or less in most, but not all, cases. Scour depth is estimated to be deeper than 5 ft in several areas, and if long-term stream degradation and debris accumulation on SunCatcher foundations is considered, the scour depth could be greater than 5 ft in many cases.

Sediment basins are proposed as mitigation for potential excess sediment production which could result from increased sediment transport capacity in the SunCatcher arrays. These basins are designed by a regional equation rather than a site-specific sediment transport analysis. Because of the lack of precision in this form of analysis, the capacity of these basins to function as intended is not known. Because the basins are designed for two years of annual sediment production, they may serve the intended purpose on small floods, but could be overwhelmed by the much larger sediment transport volume of larger floods, with the resulting effect of increased sediment deposition downstream if sediment transport from the SunCatcher fields has been increased through vegetation clearing and grading of surface irregularities.

On an average annual basis, with smaller floods occurring, the basins may function as intended to remove sediment. However, this too could have an adverse impact after a long series of small floods if the basins remove too much sediment from the system.

Artificial removal of sediment from a stream bed otherwise in equilibrium usually results in a lowering of the downstream bed. The result would be an alteration of downstream channel morphology from wide sandy washes with shallow banks to deeper channels with steeper banks. This could have an adverse effect on local riparian resources, increase the bank erosion potential, as well as affect in-stream man-made structures. Flow cascading into unprotected basins could create cuts that would migrate upstream along the channels.

Preliminary analysis determined that sediment transport capacity in on-site drainages would likely be increased by the project, with possible adverse effects. In the absence of a detailed, site-specific sediment transport analysis specifically addressing these issues, these stream morphology impacts are considered a substantial adverse impact of the project as described in the FEIS.

#### **D.4.13.4 Aquifer Contamination from Evaporation Ponds**

On-site concrete-lined evaporation ponds will be used as storage reservoirs for construction water trucked in from the off site well and then via the pipeline from the SWWTP. Water quality impacts could occur to groundwater through infiltration of the treated water from the SWWTP. The Colorado River Regional Water Quality Control Board (RWQCB) will require monitoring of groundwater during this period. Compliance with Measure SOIL&WATER-3 in the FEIS will ensure no adverse impacts to groundwater from storage of construction runoff in the evaporation ponds.

The reverse osmosis (RO) water treatment system would produce water with a high concentration of total dissolved solids, as well as other contaminants. These waste waters would be discharged into one of two concrete-lined evaporation ponds at the Main Services Complex for drying. After a pond is filled it would be allowed to dry while the other pond is filled. The dry cake from the evaporation process would be removed and exported by truck to a waste disposal facility. Potential impacts include groundwater degradation from infiltration at the ponds, and surface water degradation from spills and mishandling of the dry cake.

This discharge of wastes to the evaporation ponds would be subject to waste discharge requirements from the RWQCB. The California Water Code (CWC) Section 13260–13269; 23 CCR Chapter 9 requires the filing of a Report of Waste Discharge (ROWD) and provides for the issuance of Waste Discharge Requirements with respect to the discharge of any waste that can affect the quality of the waters of the State. An ROWD would be filed for the RO unit discharge waste. Subject to verification by the RWQCB, the RO unit and evaporation ponds would be constructed and monitored in accordance with RWQCB requirements. Measures SOIL&WATER-3 and SOIL&WATER-7 in the FEIS would ensure no adverse water quality impact from the RO water treatment system.



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#### D.4.14 NEPA Process and Issues

The responses to comments related to the NEPA process for the IVS project are provided in the following sections.

#### D.4.14.1 709 MW Alternative: Agency Preferred Alternative

Comments: F2-6 and O6-2.

In addition to the above, we are concerned about the Project's potential impacts on groundwater, We note that, on May 10th the Project proponent released a Supplement to the Imperial Valley Solar Application for Certification to BLM and the California Energy Commission (CEC). That supplement includes analyses of project design modifications, and proposes, as an alternative water supply for the Project, a sole source aquifer that may already be over-appropriated. An analysis of this newly proposed water source and the potential

F2-6

The Yuha Desert, where the Project is to be located, is a pristine but extraordinarily sensitive landscape. Damage to it from this Project is likely to be irreversible. "Implementation of this [Project will forever change the landscape of this area," and also lead to "the permanent destruction of hundreds of cultural resources......" The environmental devastation that this Project will cause is permanent, but the Project's benefits are only temporary. Nonetheless, the California Energy Commission ("CEC") and United States Bureau of Land Management ("BLM") are rushing through critical environmental reviews and omitting essential information for the sake of the Project applicant's arbitrary timetables. An applicant's supposed time constraints are not a recognized exception to the requirements of either the California Environmental Quality Act ("CEQA") or the National Environmental Policy Act ("NEPA"). It is crucial that a complete and thorough inquiry into the Project's impacts be made before the CEC and BLM commit themselves to allowing irreversible environmental damage.

06-2

The SA/DEIS fails to comply with CEQA and NEPA in seven distinct ways. First, it omits essential information and, as a result, fails as an informational document. Second, the SA/DEIS unlawfully defers the formulation of various studies and mitigation measures. Third, the assessment of the Project's environmental impacts is inadequate. Significant impacts are deemed insignificant and impacts that can be mitigated are mistakenly found to be unavoidable. Fourth, significant unstudied changes have been made to the Project since the SA/DEIS release, and significant new information is planned to be added to the SA/DEIS at a future date, so the SA/DEIS must be recirculated and an additional public comment period provided. Fifth, the discussion of Alternatives is inadequate insofar as BLM declined to evaluate Site Alternatives on the sole basis that they are inconsistent with the applicant spurpose and need. Sixth, the SA/DEIS unlawfully segments the Project by failing to consider the impacts of the related Sunrise Powerlink project. Seventh, the Project applicant now proposes to satisfy the Project's water needs with well water, but such use of that water would violate the federal Safe Drinking Water Act because the underlying aquifer has been designated a "sole source aquifer" by the United States Environmental Protection Agency.

Response: These comments question whether the modifications to the IVS project included in the Agency Preferred Alternative are adequately evaluated under the requirements of the National Environmental Policy Act (NEPA). As described in Section 2.0, Alternatives Including the Proposed Action, the Agency Preferred Alternative is the Imperial Valley Solar (IVS) project with modifications. Those modifications are described and evaluated in Chapter 4, Environmental Consequences, in the Final Environmental Impact Statement (FEIS). That evaluation, which is summarized in Appendix B, Determination of NEPA Adequacy (DNA), in the FEIS, determined that the applicant-proposed modications are within the range of the alternatives (specifically the IVS project) and that impacts documented in the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) and the existing NEPA analyses are adequate to document the impacts of the Agency Preferred Alternative (the IVS project with modifications). Refer also to Section D.4.16, Determination of NEPA Adequacy, later in this response to comments appendix for additional discussion regarding the modifications which are part of the Agency Preferred Alternative and the analysis of the potential effects of those modifications.

# D.4.14.2 Subsequent Environmental Documentation, Adequacy of Resource Inventories, Lack of Additional Studies, Adequacy of Impacts Analysis

Comments: F2-9, F2-10, L2-2, L2-16, O2-4, O2-12, O2-13, O2-14, O2-15, O2-30, O2-32, O6-2, O6-3, O6-4, O6-5, O6-12, O8-2, O9-2, O9-8, O9-56, O9-58, P10-2, P11-5, and P11-13.

Given the numerous outstanding concerns that have been raised by EPA as well as many other stakeholders on the Project as proposed, EPA strongly encourages BLM to address comments provided on the subject DEIS in the FEIS. The FEIS should also demonstrate that the proposed Project is the Least Environmentally Damaging Practicable Alternative (LEDPA), and identify measures that could mitigate the impacts. It should include a robust discussion of all avoidance and mitigation measures proposed for the Project and include an outline of the requirements of a compensatory mitigation plan.

F2-9

We believe it is imperative that BLM, resource agencies and project applicants coordinate early with other agencies and stakeholders on site selection and project design in order to facilitate timely environmental reviews. EPA appreciates the opportunity to provide input on this Project and the multitude of DEISs under preparation for renewable energy projects in our Region. We are available to further discuss all recommendations provided. Please send one hard copy of the Final EIS and two CD ROM copies to this office at the same time it is officially filed with our Washington D.C. Office. If you have any questions, please contact me at 415-972-3843, or contact Tom Plenys, the lead reviewer for this Project. Tom can be reached at 415-972-333 or prlenys thomas@ena.com

F2-10

1) Throughout the DEIS there are numerous areas where an analysis or a study is not complete and that information is forthcoming. This makes it very difficult to perform a complete analysis of the DEIS. It is our understanding that the CEC will be releasing a subsequent DEIS and provide additional review time for respondents. We look forward to a more complete document to review.

L2-2

Please provide the County with responses to the above concerns and other Imperial County Departments may also have project-related comments as well.

L2-16

Because the project approval process includes a quasi-judicial process in the California Energy Commission, the Center hereby incorporates by reference all of the materials before the California Energy Commission regarding the approval of this project. BLM is a party to the CEC process, which is being conducted in concert with the BLM approval process, and BLM has access to all of the documents (which are also readily accessible on the intermet), therefore, BLM should incorporate all of the documents and materials from that process into the administrative record for the BLM decision as well

The cumulative impacts to species in this area from sprawl development, as opposed to well planned and sited development, are not adequately addressed in the planning context. Nor is the conversion of the western Imperial Valley into a highly industrialized area (with additional wind and large scale solar plants, accompanying substations and power lines, and glare and heat sidands) adequately addressed in the environmental review. In fact, it is clear that piecemeal project approvals in this area and others may undermine the solar programmatic planning by federal agencies for the western states. This critical issue regarding planning on public lands is not adequately addressed in the DEIS which only mentions the PEIS process particularly with regards to the "south of Highway 98 alternative". DEIS at B.2-74 to 84. The BLM does not analyze how the PEIS could be affected by piecemeal approval of this and other projects. Such analysis after the fact is not consistent with the planning requirements of FLPMA or, indeed, any rational land use planning principles.

FLPMA states that "I[]he Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values," and this "I[]his inventory shall be kept current so as to reflect changes in conditions and to identify new and emerging resource and other values." 43 U.S.C. § 1711(a), FLPMA also requires that this inventory form the basis of the land use planning process. 43 U.S.C. § 1701(a)(2). See Center foliological Diversity v. Burcau of Land Management, 422 F Supp. 2d 1115, 1166-67 (N.D. Cal. 2006) (discussing need for BLM to take into account known resources in making management decisions); OMIA v. Rasmussen, 451 F. Supp. 2d 1202, 1212-13 (D. Or. 2006) (finding that BLM did not take a hard look under NEPA by relying on outdated inventories and such reliance was inconsistent with BLM's statutory obligations to engage in a continuing inventory under FLPMA). It is clear that BLM should not approve a management plan amendment based on outdated and inadequate inventories of affected resources on public lands.

As detailed below in the NEPA sections, here BLM has failed to compile an adequate inventory of the resources of the public lands that could be affected by the proposed project before preparing the DEIS (including, e.g., rare plant surveys including late-summer/early-fall flowering plants, Peninsular bighorn sheep movement and use, and other biological resources which is necessary in order to adequately assess the impacts to resources of these public lands in light of the proposed plan amendment and BLM has also failed to adequately analyze impacts on known resources. Indeed, the project proponent has stated that surveys were ongoing after the DEIS was issued and the water source for the proposed project has changed thereby requiring additional information regarding the water resources as well. Therefore, at minimum, a revised DEIS or supplemental DEIS must be prepared that includes the new information about the resources of the site and potential impacts of the project on resources of our public land, and that document must be circulated for public review and comment

02-12

#### E. The DEIS Fails to Provide Adequate Information to Ensure that the BLM will Prevent Unnecessary and Undue Degradation of Public lands

FLPMA requires BLM to "take any action necessary to prevent unnecessary or undue degradation of the lands" and "minimize adverse impacts on the natural, environmental, scientific, cultural, and other resources and values (including fish and wildlife habitat) of the public lands involved." 43 U.S.C. §8 1732(b), 1732(d)(2)(a). Without adequate information and analysis of the current status of the resources of these public lands, BLM cannot fulfill its duty to prevent unnecessary or undue degradation of the public lands and resources. Thus, the failure to provide an adequate current inventory of resources and environmental review undermines BLM's ability to protect and manage these lands in accordance with the statutory directive.

02-14

BLM has failed to properly identify and analyze impacts to the resources including the issed and sensitive species in the project area. As detailed below, the BLM's failure in this regard violates the most basic requirements of NEPA and in addition undermines the BLM's ability to ensure that the proposal does not cause unnecessary and undue degradation of public lands. See Island Mountain Protectors, 144 IBLA 168, 202 (1998) (holding that "[1] the extent BLM failed to meet its obligations under NEPA, it also failed to protect public lands from unnecessary or undue degradation"); National Wildlife Federation, 140 IBLA 85, 101 (1997)

(holding that "BLM violated FLPMA, because it failed to engage in any reasoned or informed decision-making process" or show that it had "balanced competing resource values").

#### II. The DEIS Fails to Comply with NEPA.

NEPA is the "basic charter for protection of the environment." 40 C.F.R. § 1500.1(a) In NEPA. Congress declared a national policy of "creat[ing] and maintain[ing] conditions under which man and nature can exist in productive harmony." Or. Natural Desert Ass'n v. Bureau of Land Mgmt., 531 F.3d 1114, 1120 (9th Cir. 2008) (quoting 42 U.S.C. § 4331(a)). NEPA is intended to "ensure that [federal agencies]... will have detailed information concerning significant environmental impacts" and "guarantee[] that the relevant information will be made available to the larger [public] audience." Blue Mountains Biodiversity Project v. Blackwood, 161 F.3d 1208, 1212 (9th Cir. 1998).

Under NEPA, before a federal agency takes a "major [Flederal action[] significantly affecting the quality' of the environment," the agency must prepare an environmental impact statement (EtS). Kern v. U.S. Burean of Land Mgmt., 284 F.3d 1062, 1067 (9th Cir. 2002) (quoting 43 U.S.C. § 4332(2)(C)). "An ElS is a thorough analysis of the potential environmental impact that "provide[§ full and fair discussion of significant environmental impacts and ... inform[§] decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." Klamath-Siskiyon Wildlands Ctr. v. Burean of Land Mgmt., 387 F.3d 989, 993 (9th Cir. 2004) (citing 40 C.F.R. § 1502.1). An ElS is NEPA's "chief tool" and is "designed as an 'action-forcing device to [e]nsure that the policies and goals defined in the Act are infused into the ongoing programs and actions of the Federal Government." Or. Natural Desert Ass'n, 531 F.3d at 1121 (quoting 40 C.F.R. § 1502.1).

An EIS must identify and analyze the direct, indirect, and cumulative effects of the proposed action. This requires more than "general statements about possible effects and some risk" or simply conclusory statements regarding the impacts of a project. Klamadh Siskyou Wildlands Center v. BLM, 387 F.3d 989, 995 (9th Cir. 2004) (citation omitted); Oregon Natural Resources Council v. BLM, 470 F.3d 818, 822-23 (9th Cir. 2006). Conclusory statements alone "do not equip a decisionmaker to make an informed decision about alternative courses of action or a court to review the Secretary's reasoning." NRDC' v. Hodel, 865 F.2d 288, 298 (D.C. Cir. 1988).

NEPA also requires BLM to ensure the scientific integrity and accuracy of the information used in its decision-making. 40 CFR § 1502.24. The regulations specify that the agency "must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential." 40 C.F.R. § 1500.1(b). Where complete data is unavailable, the EIS also must contain an analysis of the worst-case scenario resulting from the proposed project. Friends of Endangered Species v. Juntzen, 760 F.3d 976, 988 (9th Cir. 1985) (NEPA requires a worst case analysis when information relevant to impacts is essential and not known and the costs of obtaining the

information are exorbitant or the means of obtaining it are not known) citing Save our Ecosystems v. Clark, 747 F.2d 1240, 1243 (9th Cir. 1984); 40 C.F.R. § 1502.22.

As detailed below, the DEIS fails to comply with NEPA in several key areas. Overall, that the DEIS provides incomplete information and appears to have been prepared in a rush rather than to be the result of adequate analysis and research regarding impacts to the environment. Moreover, the DEIS fails to meet the requirements for sufficient information in many ways and fails to include any explanation for the missing information or analysis of why it could not be obtained. Further, the DEIS assumed that another agency would make a decision that was not in fact yet made regarding the availability of water from the Seeley plant—an error of fact. At minimum, because the DEIS did not accurately address the water issues a revised DEIS or supplemental DEIS must be prepared and circulated for public review and comment.

02-15

As BLM is well aware, the notice to the public regarding the availability of the DEIS was confused at best with multiple published notices regarding the availability of the DEIS and a mistaken notice regarding the date that comments would be due. In light of this, the Center urges the BLM to accept comments from the public regarding the DEIS up to and including June 23, 2010 - the date that was published in the federal register notice from the EPA on March 5, 2010 75 Fed. Reg. 10255. Given that the BLM must prepare a revised DEIS or a supplemental DEIS, it will not cause any additional delay for BLM to consider comments that are submitted up to that date from members of the public who may have been mislead by the incorrect notice.

#### 9. Failure to Identify Appropriate Mitigation

Because the DEIS fails to provide adequate identification and analysis of impacts, inevitably, it also fails to identify adequate mitigation measures for the project's environmental impacts. "Implicit in NEPA's demand that an agency prepare a detailed statement on 'any adverse environmental effects which cannot be avoided should the proposal be implemented,' 42 U.S.C. § 4332(C)(ii), is an understanding that an EIS will discuss the extent to which adverse effects can be avoided." Methow Valley, 490 U.S. at 351-52. Because the DEIS does not adequately assess the project's direct, indirect, and cumulative impacts, its analysis of mitigation measures for those impacts is necessarily flawed. The DEIS must discuss mitigation in sufficient detail to ensure that environmental consequences have been fairly evaluated." Methow Valley, 490 U.S. at 352; see also Idaho Sporting Congress, 137 F.3d at 1151 ("[w]ithout analytical detail to support the proposed mitigation measures, we are not persuaded that they amount to anything more than a 'mere listing' of good management practices"). As the Supreme Court clarified in Robertson, 490 U.S. at 352, the "requirement that an EIS contain a detailed discussion of possible mitigation measures flows both from the language of [NEPA] and, more expressly, from CEQ's implementing regulations" and the "omission of a reasonably complete discussion of possible mitigation measures would undermine the 'action forcing' function of NEPA."

O2-30

Although NEPA does not require that the harms identified actually be mitigated, NEPA does require that an EIS discuss mitigation measures, with "sufficient detail to ensure that environmental consequences have been fairly evaluated" and the purpose of the mitigation discussion is to evaluate whether anticipated environmental impacts can be avoided. Methow Yalley, 490 U.S. at 351-52. As the Ninth Circuit recently noted: "fla mitigation discussion without at least some evaluation of effectiveness is useless in making that determination." South Fork Band Council of Western Shoshow v. DOI, 588 F.3d 718, 727 (9th Cir. 2009) (emphasis in original).

Here, the DEIS does not provide a full analysis of possible mitigation measures to avoid or lessen the impacts of the proposed project and therefore the BLM cannot properly assess the likelihood that such measures would actually avoid the impacts of the proposed project.

#### D. Key Plans are Not Included

The DEIS fails to include key plans for public review. Plans relied upon for adequate mitigation but which are unavailable include:

- o Noxious Weed Management Plan (DEIS at C.2-32)
- o Biological Resources Mitigation Implementation and Monitoring Plan (DEIS at C.2-78)
- o Raven Management and Monitoring Plan (DEIS at C.2-44)
- Contingency Plan (for temporary closure) (DEIS at C.2-50)
- o Decommissioning and Reclamation Plan (for permanent closure) (DEIS at C.2-50)
- o Burrowing Owl Mitigation and Monitoring Plan (DEIS at C.2-78)
- Frac-out Contingency Plan (DEIS at C.2-2) for the horizontal drilling of the reclaimed water-line (which may no longer be part of the project)
- o Drainage, Erosion, and Sedimentation Control Plan (DEIS at C.7-1)

Several other key plans are also missing from the DEIS but involve more complicated issues the Management Plan for Acquired Lands (DEIS at C.2-35) is a key document that needs to have public review to ascertain if, in fact, acquired lands actually do mitigate for the impacts (see discussion above on "nesting"), the DEIS fails to identify the acquisition lands, or if acquisition lands are actually even available. Clearly, if the proposed project was to move forward, acquired lands are a key component of a mitigation strategy. The supplemental EIS must provide a better evaluation if lands are available, and where those lands are, and how they will fulfill the mitigation scenario.

02-32

The Special Status Plant Survey and Protection Plan (DEIS at C.2-97) is also missing. While this plan is proposed as a mitigation requirement, that position is unsupportable because the special status plant surveys need to be done to provide the baseline data from which evaluation for potential project impacts can be analyzed. Surveys are not a mitigation strategy.

Shockingly, no relocation plan for flat-tailed horned lizard is even required in the DEIS, despite the acknowledgement that relocation will be a minimization strategy. The DEIS cannot rely on the FTHL Rangewide Management Strategy because this document does not include any guidance on relocation. Little data is available on the effectiveness of relocating reptiles in general and flat-tailed horned lizards specifically. In fact, a review of the literature concludes that relocation of reptiles (and amphibians) has not been a successful strategy for conservation <sup>27</sup>.

Relocation should be looked on as experimental at best, and scientifically based strategy needs to be developed in a relocation plan including a significant adaptive management component. This strategy needs to be included in the revised or supplemental DEIS and provided for public review and comment.

The Yuha Desert, where the Project is to be located, is a pristine but extraordinarily sensitive landscape. Damage to it from this Project is likely to be irreversible. "Implementation of this [Project will forever change the landscape of this area," and also lead to "the permanent destruction of hundreds of cultural resources....." The environmental devastation that this Project will cause is permanent, but the Project's benefits are only temporary. Nonetheless, the California Energy Commission ("ECC") and United States Bureau of Land Management ("BLM") are rushing through critical environmental reviews and omitting essential information for the sake of the Project applicant's arbitrary timetables. An applicant's supposed time constraints are not a recognized exception to the requirements of either the California Environmental Quality Act ("CEQA") or the National Environmental Policy Act ("NEPA"). It is crucial that a complete and thorough inquiry into the Project's impacts be made before the CEC and BLM commit themselves to allowing inverseriable environmental damage.

The SA/DEIS fails to comply with CEQA and NEPA in seven distinct ways. First, it omits essential information and, as a result, fails as an informational document. Second, the SA/DEIS unlawfully defers the formulation of various studies and mitigation measures. Third, the assessment of the Project's environmental impacts is inadequate. Significant impacts are deemed insignificant and impacts that can be mitigated are mistakenly found to be unavoidable. Fourth, significant unstudied changes have been made to the Project since the SA/DEIS release, and significant new information is planned to be added to the SA/DEIS at a future date, so the SA/DEIS must be recirculated and an additional public comment period provided. Fifth, the discussion of Alternatives is inadequate insofar as BLM declined to evaluate Site Alternatives on the sole basis that they are inconsistent with the applicant's purpose and need. Sixth, the SA/DEIS unlawfully segments the Project by failing to consider the impacts of the related Sunrise Powerlink project. Seventh, the Project applicant now proposes to satisfy the Project's water needs with well water, but such use of that water would violate the federal Safe Drinking Water Act because the underlying aquifer has been designated a "sole source aquifer" by the United Slates Environmental Protection Agency.

"available to public officials and citizens before decisions are made and before actions are taken." Id. § 1500.1(b). This is because "a]ccurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing RPRA." Id. "[Bly requiring agencies to take a 'hard look' at how the choices before them affect the environment, and then to place their data and conclusions before the public, NPPA relies upon democratic processes to ensure . . . that 'the most intelligent, optimally beneficial decision will ultimately be made." "Oregon Natural Desert Ass' n v. Bureau of Land Mgmt., 531 F.34 1114 (9th Cir. 2008) (internal citations omitted). CEQA is similarly intended to "[jinform governmental decision makers and the public about the potential, significant environmental effects of proposed activities." CEQA Guidelines [14 C.C.R.; "Guidelines"] § 15002(a); No Oil, Inc. v. City of Los Angeles, 13 Cal.3d 68, 86 (1974). The Guidelines emphasize that agencies "must use [their] best efforts to find out and disclose all that [they] reasonably can." Guidelines § 15144.

In violation of these fundamental precepts, the SA/DEIS fails to include a number of critically important studies whose inclusion is necessary for both the public and CEC/BLM to fully understand the environmental consequences of the Project. For example, many viewpoint simulations were omitted "due to fast-track time constraints," so the public has no idea of the actual visual impacts of the Project on the Juan Bautista de Anza National Historic Trail ("Anza NHT"). SA/DEIS, p. C.13-18. As discussed more fully in the following section, nearly every section of the SA/DEIS mentions an omitted study.

Because the SA/DEIS fails to include critical studies and information necessary to fully understand the impacts that the Project will have, it violates both CEQA and NEPA.

O6-2

O6-3

Because both NEPA and CEQA are intended to make decisions based upon high quality information, they both prohibit agencies from relying on the contents of studies and documents that are to be developed at a future date. "Formulation of mitigation measures should not be deferred until some future time." Guidelines § 15126.4(a)(1)(B). Reliance on yet-to-be-developed studies inevitably leads to a "post hoc rationalization of agency actions" that "inevitably ha[s] a diminished influence on decisionmaking." Sundstrom v. County of Mendocino, 202 Cel. App. 32 dey, 307 (1983). Agencies "may not 'act first and study later." Western Land Exch. Proj. v. United States Bureau of Land Mgmt. 315 F.Supp. 2d 1068, 1092 (D. Nev. 2004) (quoting Nat! Parks & Conserv. Ass' n. v. Babbitt, 241 F.3d 722, 734 (9th Cir. 2001). Doing so "provides no. ... guarantee of an adequate inquiry into environmental effects." Sundstrom, supra, 202 Cal. App. 3d at 307. Agencies are similarly prohibited from conditioning the approval of projects upon the "adopt[ion] of mitigation measures recommended in a future study." d.d. at 306.

O6-4

Here, the SA/DEIS unlawfully relies on a number of studies whose content has yet to be formulated, and conditions project approval upon the adoption of mitigation measures that have not yet been created. For example, the Army Corps of Engineers' identification of the Least Environmentally Damaging Alternative has not yet occurred, but "[m]itigation for unavoidable impacts to waters of the U.S. is" to be "addressed only" after this is completed. SA/DEIS, p. C.7-2; see also SA/DEIS, pp. C.7-65 through 66 (compliance with section 404 of the Clean Water Act cannot be determined). A Drainage, Erosion and Sedimentation Control Plan "that ensures protection of water quality and soil resources" is also incomplete, as is the Stormwater Damage Monitoring and Response Plan. SA/DEIS C.7-56, C.7-61. Similarly, an examination of the historically significant cultural resources present at the site "has not been completed." SA/DEIS, p. C.3-136.5 The Visual Resources section requires the applicant to (1) "develop and implement a glare mitigation plan" and (2) pay an amount that "will be determined" in the future to fund unspecified measures that are intended "to mitigate . . . visual impacts to recreational users of the Anza" NHT. SA/DEIS, p. C.13-45 through 46. The Traffic and Transportation section requires the applicant to develop and implement a plan designed to mitigate the Project's traffic impacts, and to prepare and implement a "Mirror Positioning Plan" to minimize the health and safety impacts that could result from excessive glare. SA/DEIS, p. C.11-20 through 22. A noise control program and community noise survey, and the mitigation measures they will lead to, also have yet to be developed. SA/DEIS, p. C-9-21. A Safety Management Plan, intended to reduce the likelihood of a hazardous waste spill, is unformulated, as is a Construction Security Plan and an Operation Security Plan. SA/DEIS, p. C.5-20 through 21. Impacts to paleontological resources are undisclosed because the pertinent studies are, again, incomplete. SA/DEIS, p. C.4-25 through 27. The Programmatic Agreement that is intended to ensure mitigation of certain cultural impacts was not complete when the SA/DEIS was published, so comment on it is not possible. SA/DEIS, p. C.2-145. Finally, the Biological Resources mitigation Implementation and Monitoring Plan also has yet to be developed. SA/DEIS, p. C.2-78.

O6-4

The sheer volume of omitted information is staggering. The public is prevented from assessing the adequacy of the Project's mitigation measures because most of them have not yet been created. Whether or not these unformulated mitigation measures will themselves have environmental impacts is impossible to determine. The CEC and BLM must recirculate the SA/DEIS when all of these omitted studies have been completed and included in the SA/DEIS. Without these studies, the SA/DEIS is incomplete as matter of law.

Both NEPA and CEQA require agencies to identify the significant environmental effects of their actions. CEQA also requires either mitigate these impacts, or make a finding of overriding considerations. Pub. Res. Code § 21081(a). All significant impacts must be mitigated unless mitigation measures to reduce these impacts are infeasible. Id. Here, the SA/DEIS (1) fails to identify certain

O6-5

As discussed above, huge amounts of crucial information were omitted from the SA/DEIS. Moreover, the applicant's decision to modify the Project's water source would, as also discussed above, at the very least create a possibility of new significant environmental impacts. The public was significantly hindered in commenting on the Project by the absence of all of this information. In these significantly hindered in commenting on the Project by the absence of all of this information. In these situations, both NEPA and CEQA require recirculation of the environmental document. See, e.g., Pub. Res. Code § 21092.1 (renotification required where significant new information is added to EIR prior to certification); Guidelines § 1508.8.5 (new information is significant, and recirculation accordingly required, where the FIR "deprives the public of a meaningful opportunity to comment upon" the project's significant impacts or mitigation measures): 40 C.F. R. § 150.29(c)/1) (agencies "shall prepare supplements to ... draft ... environmental impact statements" where "substantial changes" are made to the Project or "significant new circumstances or information," was added to the document). Because NEPA and CEQA are intended to provide the public with access to high-quality information, it is unlawful to release the DEIS and then attempt to fix its problems out of the public eye. If significant new information is added to the SA/DEIS, it must be recirculated.

O6-12

#### Late Submittal of 1,021 pages and outstanding data requires recirculation for public comment

The following issues support this justified request for a re-circulated SA/DEIS:

- The May 10 posting of an additional 1.021 pages of information.
- Despite the late posting, the still long list of outstanding issues as raised by CEC staff, CURE and others at the May 24-25 evidentiary hearings.
   Those outstanding issues include the lack of a fully vetted, secured, and approved water source.
- The May 24-25 evidentiary hearings and expert testimony were incomplete due to outstanding
- data, surveys, environmental reviews.

  The project review is being piecemealed and presented in a serial manner. Which makes for difficult review and comment
- The Sunrise Powerlink, transmission source for Phase II and part of the "whole of the project", is still undergoing legal challenge and issued a Project Modification Report on May 15th with major changes since the project was unlawfully approved in late 2008 (PUC) and early 2009 (BLM). The Forest Service decision on Sunrise is still outstanding.
- Decision makers and the public need, and the law requires, adequate time to review and
  respond to all the new and outstanding information regarding the whole of the projectespecially when it entails the vet-to-be-vetted backup water supply for the project that is now
  proposed as the main supply "for 6 months to 3 years" (Supplemental 1-3), or for the life of
  project, and the other significant changes.

O8-2

#### II. THE DEIS FAILS AS AN INFORMATIONAL DOCUMENT

The purpose of NEPA is to ensure that every federal agency prepare an EIS for major federal actions significantly affecting the quality of the human environment. An EIS must provide a "full and fair discussion of significant environmental impacts and shall inform the decision-makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment."

The DEIS does not even begin to scratch the surface of the size and significance of the impacts that will be posed by this Project on public lands in the fragile desert environment. At 6.500 acres (10 square miles), this single power plant project is larger than many cities in California including Inglewood, Santa Monica and Daly City. A map of the Project lay-out demonstrates that nearly the entire area will be disturbed by roads, power units, buildings, underground utilities and support structures. This will dramatically impact every aspect of the ecosystem on the Project site and surrounding the Project area. The vast majority of these impacts were not identified, disclosed, analyzed or mitigated in the DEIS.

The DEIS fails as an informational document because it does not adequately describe many of these resources. The DEIS fails to establish the project setting, it does not fully and fairly describe the proposed action, it wholly omits discussion of a number of potentially significant environmental impacts, and it fails to provide a reasonable range of alternatives to avoid or mitigate the Project's adverse impacts. As described below, the DEIS must be revised to fully describe the project setting, the project, the impacts from the project, mitigation and alternatives; and the revised DEIS should be circulated for public review and comment, as required by NEPA.

09-2

### IX. A SUPPLEMENTAL DEIS SHOULD BE RECIRCULATED FOR PUBLIC COMMENT

NEPA requires that federal agencies analyze the environmental effects of proposed actions, publish the results of their study and receive and respond to public comments. These "action-forcing" requirements are intended to serve two broad goals. First, Congress intended that an agency, "in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts," <sup>151</sup> Second, the publication of the EIS informs the public of potential environmental impacts and "provides a springboard for public comment." <sup>152</sup>

The DEIS falls short of satisfying either of NEPA's two broad goals. First, the DEIS fails to include ANY information about some of the Project's significant environmental impacts. Second, without a complete and detailed statement, the DEIS fails to provide the public with an adequate basis to

understand the Project's impacts or to evaluate and compare the proposed alternatives.

The DEIS could not have satisfied these purposes because the Applicant failed to provide BLM with the information necessary for a complete and accurate DEIS and the Applicant made significant changes to the Project in May, 2010. Because the Applicant neglected to provide BLM with sufficient information, BLM issued a DEIS that is incomplete with respect to potentially significant impacts and mitigation measures for several resource areas. <sup>153</sup>

#### X. CONCLUSION

The DEIS must be revised to inform the public and decision makers of the Project's significant impacts, and to avoid or reduce environmental damage when possible by requiring alternatives or mitigation measures. As

the DEIS is currently written, it fails as an informational document and it violates the Clean Water Act, the Endangered Species Act, and the National Historic Preservation Act. Thus, the BLM, after receiving the necessary information from the Applicant to draft a complete DEIS, must correct the shortcomings outlined above, and circulate a revised DEIS for public review and comment

09-56

09-56

2. As I indicated in my public comments, I feel it was totally unfair to have a public meeting in an office of our adversary SDGE. While I was looking at the panel of officials during this meeting, all I saw was pictures of the proposed Sunrise Powerlink and their logos, etc. I'm sure you know how difficult is to begin with to speak from the heart in a public setting and all this does is make it more difficult. I request that we have an additional public meeting on a neutral site without all the banners of an SDGE III conceived project that is in the midst of numerous lawsuits due to a lack of need for the proposed project.

P10-2

11. Changing Project description without Staff analysis requires revisions, and recirculation for public comment under both NEPA and CEQA rather than merely a Final EIS for BLM and a Supplemental Istaff Assessment from CEC. Having the Staff analysis which is the environmental review documents become available after the close of public comment precludes meaningful public comment.

P11-5

- The Changing Project description without Staff analysis requires revisions, and recirculation for public comment under both NEPA and CEQA.
- 21. IV Solar Project description has been a moving target and the SA/DEIS does not reflect the current state of the project description under the May 10, 2010 posting of the Applicant's Supplement to the Application for Certification URS Project No. 27657106.00306" (SAFC) which includes a proposal to use groundwater from well 165/9E-3664 in the Ocotillo-Coyote Wells Groundwater Basin. This basin is an US EPA designated Sola Source Aquifer in 1996.

P11-13

The proposed Imperial Valley Solar Project/SES Solar 2, what is the real project description? How much has changed?

22. According to information in the February 2010 SA/DEIS and Supplement to the AFC dated May 5, 2020 Stirling Energy Systems Solar Two, LLC applied to the Energy Commission for a license to build and operate the Imperial Valley Solar Project. The proposed a nominal 750-megawatt facility, with construction planned to begin in late 2010 if the project

- applicant is able to secure funding for what was stated to now be a \$2 billion project according to statements by Mark Van Patten om May 25, 2010. See Exhibit 569 "Rush is on for desert solar" at signonsansigeo.com, May 26, 2010 account of CEC Evidentiary Hearing.).
- 23. The primary equipment for the generating facility would include approximately 30,000, 25-kilowatt solar dish SunCatchers, their associated equipment and systems, and their support infrastructure. Power would be generated by groups of 60 SunCatchers connected by underground lines. The project would also require construction of approximately 10. miles of double circuit 230 kV transmission lines to connect to the existing SDG&E transmission facilities In addition to hundreds of miles of roads the solar thermal electric generating facility would include a 230 kV substation and various buildings at the center of the proposed site.
- 24. More than 5,000 suneatehers would be placed in areas known to be subject to flash flooding (ES-28) There are 878 acres of jurisdictional waters, including 165 acres with permanent impacts (ES-29)

P11-13

25. The 6,500 acre (more than 10 square miles) project site is located on approximately 6,140 acres of federal public land managed by the Bureau of Land Management (BLM) and approximately 360 acres of privately owned land. The site is approximately 100 miles east of 5an Diego, 14 miles west of El Centro, and approximately 4 miles east of Ocotillo, even if the SA/DEIS mischaracterizes the location as being 4 miles east of Ocotillo Wells in San Diego County. Conversion of these lands is cumulatively significant, even though it may seem small compared to the approximately one million acres of lands in the California Deserts that have been proposed for solar or wind development. (ES-31). Other resource values would be lost as public lands are converted to industrial scale solar.

Response: The Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) was prepared based on available technical information. Since then, additional information has been provided by the applicant and the CEC. The CEC will be separately preparing and publishing a Supplemental Staff Assessment incorporating some of that information and addressing modifications to the IVS project since the SA/DEIS was published.

The NEPA process, like the CEQA process, was designed to provide information, but also to examine impacts and alternatives with that examination potentially helping to identify ways to improve a project while further minimizing the project impacts. The information disclosure and sharing process inherent with NEPA does not exist in a vacuum and frequently improvements, additional mitigation, and/or project design features are added to a proposed project as a result of comments received on a draft EIS. Consistent with these tenets of NEPA, the United States Bureau of Land Management (BLM) has prepared a Final Environmental Impact Statement (FEIS) addressing the Agency Preferred Alternative (which is the IVS project with modifications) and which includes results of additional biological resources surveys and other information completed since the SA/DEIS was prepared. The BLM's position is that the SA/DEIS and the FEIS contain sufficient information, including information regarding resources on the BLM-managed lands on the IVS project site, and analyses to understand and document the effects of the IVS project, the Agency Preferred Alternative, the other Build Alternatives, and the No Action Alternatives and, therefore, recirculation of the environmental document is not required.

Refer also to Section 4.21, Determination of NEPA Adequacy, for the documentation of the analyses of the project modifications and the conclusion that the NEPA information and analyses in the FEIS are adequate for the Agency Preferred Alternative.

#### D.4.14.3 Mitigation

Comments: O2-30, O2-32, O6-2, and O6-4.

#### 9.. Failure to Identify Appropriate Mitigation

Because the DEIS fails to provide adequate identification and analysis of impacts, inevitably, it also fails to identify adequate mitigation measures for the project's environmental impacts. "Implicit in NEPA's demand that an agency prepare a detailed statement on 'any adverse environmental effects which cannot be avoided should the proposal be implemented,' 42 U.S.C. § 4332(CVii), is an understanding that an EIS will discuss the extent to which adverse effects can be avoided." Methow Valley, 490 U.S. at 351-52. Because the DEIS does not adequately assess the project's direct, indirect, and cumulative impacts, its analysis of mitigation measures for those impacts is necessarily flawed. The DEIS must discuss mitigation in sufficient detail to ensure that environmental consequences have been fairly evaluated." Methow Valley, 490 U.S. at 352; see also Idaho Sporting Congress, 137 F.3d at 1151 ("[w]ithout analytical detail to support the proposed mitigation measures, we are not persuaded that they amount to anything more than a 'mere listing' of good management practices"). As the Supreme Court clarified in Robertson, 490 U.S. at 352, the "requirement that an EIS contain a detailed discussion of possible mitigation measures flows both from the language of [NEPA] and, more expressly, from CEQ's implementing regulations" and the "omission of a reasonably complete discussion of possible mitigation measures would undermine the 'action forcing' function of NEPA."

Although NEPA does not require that the harms identified actually be mitigated, NEPA does require that an EIS discuss mitigation measures, with "sufficient detail to ensure that environmental consequences have been fairly evaluated" and the purpose of the mitigation discussion is to evaluate whether anticipated environmental impacts can be avoided. Methow Yalley, 490 U.S. at 351-52. As the Ninth Circuit recently noted: "[a] mitigation discussion without at least some evaluation of effectiveness is useless in making that determination." South Fork Band Conneil of Western Shoshone v. DOI, 588 F.3d 718, 727 (9th Cir. 2009) (emphasis in original).

Here, the DEIS does not provide a full analysis of possible mitigation measures to avoid or lessen the impacts of the proposed project and therefore the BLM cannot properly assess the likelihood that such measures would actually avoid the impacts of the proposed project.

### D. Key Plans are Not Included

The DEIS fails to include key plans for public review. Plans relied upon for adequate mitigation but which are unavailable include:

- o Noxious Weed Management Plan (DEIS at C.2-32)
- o Biological Resources Mitigation Implementation and Monitoring Plan (DEIS at C.2-78)
- o Raven Management and Monitoring Plan (DEIS at C.2-44)
- o Contingency Plan (for temporary closure) (DEIS at C.2-50)
- o Decommissioning and Reclamation Plan (for permanent closure) (DEIS at C.2-50)
- Burrowing Owl Mitigation and Monitoring Plan (DEIS at C.2-78)
- Frac-out Contingency Plan (DEIS at C.2-2) for the horizontal drilling of the reclaimed water-line (which may no longer be part of the project)
- o Drainage, Erosion, and Sedimentation Control Plan (DEIS at C.7-1)

Several other key plans are also missing from the DEIS but involve more complicated issues. While the Management Plan for Acquired Lands (DEIS at C.2-35) is a key document that needs to have public review to ascertain if, in fact, acquired lands actually do mitigate for the impacts (see discussion above on "nesting"), the DEIS fails to identify the acquisition lands, or if acquisition lands are actually even available. Clearly, if the proposed project was to move forward, acquired lands are a key component of a mitigation strategy. The supplemental EIS must provide a better evaluation if lands are available, and where those lands are, and how they will fulfill the mitigation scenario.

The Special Status Plant Survey and Protection Plan (DEIS at C.2-97) is also missing. While this plan is proposed as a mitigation requirement, that position is unsupportable because the special status plant surveys need to be done to provide the baseline data from which evaluation for potential project impacts can be analyzed. Surveys are not a mitigation strategy.

Shockingly, no relocation plan for flat-tailed horned lizard is even required in the DEIS, despite the acknowledgement that relocation will be a minimization strategy. The DEIS cannot rely on the FTHI, Rangewide Management Strategy because this document does not include any guidance on relocation. Little data is available on the effectiveness of relocating reptiles in general and flat-tailed horned lizards specifically. In fact, a review of the literature concludes that relocation of reptiles (and amphibians) has not been a successful strategy for conservation<sup>27</sup>.

Relocation should be looked on as experimental at best, and scientifically based strategy needs to be developed in a relocation plan including a significant adaptive management component. This strategy needs to be included in the revised or supplemental DEIS and provided for public review and comment.

02-32

The Yuha Desert, where the Project is to be located, is a pristine but extraordinarily sensitive landscape. Damage to it from this Project is likely to be irreversible. "Implementation of this [Project will forever change the landscape of this area," and also lead to "the permanent destruction of hundreds of cultural resources...," The environmental devastation that this Project will cause is permanent, but the Project's benefits are only temporary. I Nonetheless, the California Energy Commission ("CEC") and United States Bureau of Land Management ("BLM") are rushing through critical environmental reviews and omitting essential information for the sake of the Project applicant's arbitrary timetables. An applicant's supposed time constraints are not a recognized exception to the requirements of either the California Environmental Quality Act ("CEQA") or the National Environmental Policy Act ("NEPA"). It is crucial that a complete and thorough inquiry into the Project's impacts be made before the CEC and BLM commit themselves to allowing irreversible environmental damage.

The SA/DEIS fails to comply with CEQA and NEPA in seven distinct ways. First, it omits essential information and, as a result, fails as an informational document. Second, the SA/DEIS unlawfully defers the formulation of various studies and mitigation measures. Third, the assessment of the Project's environmental impacts is inadequate. Significant impacts are deemed insignificant and impacts that can be mitigated are mistakenly found to be unavoidable. Fourth, significant unstudied changes have been made to the Project since the SA/DEIS' release, and significant new information is planned to be added to the SA/DEIS at a future date, so the SA/DEIS must be recirculated and an additional public comment period provided. Fifth, the discussion of Alternatives is inadequate insofar as BLM declined to evaluate Site Alternatives on the sole basis that they are inconsistent with the applicant is purpose and need. Sixth, the SA/DEIS unlawfully segments the Project by failing to consider the impacts of the related Sunitse Powerlink project. Seventh, the Project applicant now proposes to satisfy the Project's water needs with well water, but such use of that water would violate the federal Safe Drinking Water Act because the underlying aquifer has been designated a "sole source aquifer" by the United States Environmental Protection Agency.

Because both NEPA and CEQA are intended to make decisions based upon high quality information, they both prohibit agencies from relying on the contents of studies and documents that are to be developed at a future date. "Formulation of mitigation measures should not be deferred until some future time." Guidelines § 15126.4(a)(1)(B). Reliance on yet-to-be-developed studies inevitably leads to a "post hor extinonalization of agency extions" that "inevitably ha[s] a diminished influence on decisionmaking." Sundstrom v. County of Mendocino, 202 Cal.App.3d 296, 307 (1988). Agencies "may not 'act first and study later." Western Land Exch. Proj. v. United States Bureau of Land Mgmt. 315 F.Supp. 2d 1068, 1092 (D. Nev. 2004) (quoting Nat! Parks & Conserv. Ass'n. v. Babbitt, 241 F.3d 722, 734 (9th Cir. 2001). Doing so "provides no... guarantee of an adequate inquiry into environmental effects." Sundstrom, supra. 202 Cal. App. 3d at 307. Agencies are similarly prohibited from conditioning the approval of projects upon the "adopt[ion] of mitigation measures recommended in a future study." d. at 306.

Here, the SA/DEIS unlawfully relies on a number of studies whose content has yet to be formulated, and conditions project approval upon the adoption of mitigation measures that have not yet been created. For example, the Army Corps of Engineers' identification of the Least Environmentally O6-2

Damaging Alternative has not yet occurred, but "[m]itigation for unavoidable impacts to waters of the U.S. is" to be "addressed only" after this is completed. SA/DEIS, p. C.7-2; see also SA/DEIS, pp. C.7-65 through 66 (compliance with section 404 of the Clean Water Act cannot be determined). A Drainage, Erosion and Sedimentation Control Plan "that ensures protection of water quality and soil resources" is also incomplete, 4 as is the Stormwater Damage Monitoring and Response Plan. SA/DEIS C.7-56, C.7-61. Similarly, an examination of the historically significant cultural resources present at the site "has not been completed." SA/DEIS, p. C.3-136.5 The Visual Resources section requires the applicant to (1) "develop and implement a glare mitigation plan" and (2) pay an amount that "will be determined" in the future to fund unspecified measures that are intended "to mitigate . . . visual impacts to recreational users of the Anza" NHT. SA/DEIS, p. C.13-45 through 46. The Traffic and Transportation section requires the applicant to develop and implement a plan designed to mitigate the Project's traffic impacts, and to prepare and implement a "Mirror Positioning Plan" to minimize the health and safety impacts that could result from excessive glare. SA/DEIS, p. C.11-20 through 22. A noise control program and community noise survey, and the mitigation measures they will lead to, also have yet to be developed. SA/DEIS, p. C-9-21. A Safety Management Plan, intended to reduce the likelihood of a hazardous waste spill, is unformulated, as is a Construction Security Plan and an Operation Security Plan. SA/DEIS, p. C.5-20 through 21. Impacts to paleontological resources are undisclosed because the pertinent studies are, again, incomplete. SA/DEIS, p. C.4-25 through 27. The Programmatic Agreement that is intended to ensure mitigation of certain cultural impacts was not complete when the SA/DEIS was published, so comment on it is not possible. SA/DEIS, p. C.2-145. Finally, the Biological Resources mitigation Implementation and Monitoring Plan also has yet to be developed. SA/DEIS, p. C.2-78.

06-4

The sheer volume of omitted information is staggering. The public is prevented from assessing the adequacy of the Project's mitigation measures because most of them have not yet been created. Whether or not these unformulated mitigation measures will themselves have environmental impacts is impossible to determine. The CEC and BLM must recirculate the SA/DEIS when all of these omitted studies have been completed and included in the SA/DEIS. Without these studies, the SA/DEIS is incomplete as a matter of law.

Response: The SA/DEIS and the FEIS include extensive mitigation addressing the potential adverse project impacts. Many of these are measures that have been used extensively throughout the State and, therefore, are anticipated to effectively address the adverse project impacts. In addition, many of the measures include standards or other requirements that, if not met, would trigger the need for additional mitigation. BLM's position is that the mitigation as presented in the SA/DEIS and the FEIS is adequate to address the potential adverse project impacts and includes sufficient standards and other requirements to ensure that the impacts are properly mitigated.

Many of the mitigation measures require the preparation of detailed plans during final design and prior to any activity on the project site. This is consistent with the requirements of NEPA because these measures identify the impacts intended to be addressed by those plans and key activities that would be included in those plans to mitigate the identified impacts.

In summary, BLM's position is that the existing mitigation in the FEIS is adequate to address the adverse project impacts. Where there are adverse impacts that mitigation cannot entirely

mitigate, these impacts have been identified as unavoidable adverse impacts of the IVS project and the other Build Alternatives.

## D.4.14.4 Fast Tracking/Project Applicant's Schedule

Comments: O8-4 and O8-9.

# Applicant's pressure to move the CEC/BLM process forward without critical data for the "whole of the project", and for "overrides" is unconscionable

The CEC/BLM should deny the applicant's repeated request made at the May evidentiary hearings to move forward with project review /approval without waiting for the EIR for the Seeley Waste Water Treatment Facility (proposed permanent water source), the resolution of the legality and viability of exporting 40 acre feet per year of at risk desert ground water resources (backup water source) from the Ocotillo/Coyote Wells Sole Source Aquifer for Industrial use, and the US Army Corps determination of the Least Environmentally Damaging Practicable Alternative project. The issues represent the whole of the project along with the other outstanding Information and should be reviewed and analyzed by staff and the public.

# Fast tracking should be rejected: NEPA / CEQA compliance is required including the "whole of project"

- This project should not be fast-tracked—and should not receive ARRA funds or other tax-payer or rate-payer based funding.
- Federal funds are not allowed when a project has the potential to contaminate the federally
  designated Ocotillo /Coyote Wells Sole Source Aquifer. See comments " water source"
  comments below.
- There are too many outstanding issues and unanswered questions including a fully vetted and secured water source.
- CEQA requires CEC to determine "whole project" compliance with the law, including direct and indirect impacts.
- NEPA has similar requirements.

08-4

- Outstanding Information includes "whole project" impacts—connected actions, direct, indirect
  and cumulative impacts—to hydrology, blology, including environmental, biological, air, cultural,
  visual, historic, recreation, wildlife corridor and foraging impacts, environmental justice, and
  more.
- The "whole project" includes SDG&E's connected action projects: Sunrise Powerlink, IV Substation, ECO/Boulevard Substation and more (See Sunrise Powerlink FEIR/EIS Figure ES-1)
- Backup generation is needed for wind and solar. See SDG&E's comments in news article dated 5-23-10: <a href="http://www.signonsandiego.com/news/2010/may/23/renewables-need-helping-hand-from-gags: "People need to understand the intermittency challenge we have," soid SDG&E's Niggli. The wind comes and goes, and on the hottest days of the year, there's no wind, and you still need to provide power to your customers... These resources are not under our control, but under the control of nature." Gas plants can take up the slack."</li>

What is the source of necessary back up generation for Solar Two / IV Solar?

- Gas-fired backup generation, and related Green House Gases should also be considered and analyzed as part of the "whole of the project".
- The project and any mitigation measures cannot be analyzed or approved until all the outstanding information is available for public review and comment prior to close of public comment.
- How can we make a fully informed decision and comments without all the information on the 'whole of the project" and related impacts, including cumulative impacts.

Response: The fast track schedule for the IVS FEIS is based on The Energy Policy Act and Secretarial Order 3285 (dated March 11, 2009) and not on the applicant's schedule. These directives are discussed in Chapter 1 of the FEIS as part of BLM's purpose and need for the project. The BLM has committed to meeting the goals in these directives and fast tracking some of the renewable energy projects will allow the BLM to meet those goals. The fast tracking included preparation of the joint SA/DEIS with the CEC. The fast track schedule is not in any way dependent on or in response pressure from the applicant.

### **D.4.15 California Energy Commission Process**

These comments raised questions regarding the California Energy Commission's (CEC) process for complying with the requirements of CEQA and CEC requirements for the IVS project.

Comments: 02-4, P10-2, P11-3, P11-7, P11-10, and P11-11.

Because the project approval process includes a quasi-judicial process in the California Energy Commission, the Center hereby incorporates by reference all of the materials before the California Energy Commission regarding the approval of this project. BLM is a party to the CEC process, which is being conducted in concert with the BLM approval process, and BLM has access to all of the documents (which are also readily accessible on the internet), therefore, BLM should incorporate all of the documents and materials from that process into the administrative record for the BLM decision as well.

02-4

2. As I indicated in my public comments, I feel it was totally unfair to have a public meeting in an office of our adversary SDGE. While I was looking at the panel of officials during this meeting, all I saw was pictures of the proposed Sunrise Powerlink and their logos, etc. I'm sure you know how difficult is to begin with to speak from the heart in a public setting and all this does is make it more difficult. I request that we have an additional public meeting on a neutral site without all the banners of an SDGE ill conceived project that is in the midst of numerous lawsuits due to a lack of need for the proposed project.

P10-2

4. I am also concerned that the phone conferencing excludes those who do not have landline phone service and cannot afford to participate by cell phone during daytime because it is cost prohibitive. I understand that I am not the only concerned member of the public who lives in a place where the phone companies never have run phone lines. Yes, I was present during the entire two days of evidentiary hearings, but I could never have heard any of that input by phone. An around the world plane trip would likely have been less expensive than a two day cell phone call! So, yes, I can appreciate that the State has a tight budget, but so do concerned members of the public who care enough to want to participate. If the state and BLM cannot afford the costs of travel or staff time to provide opportunities for public participation as intended by CEQA and NEPA than there should be a higher up-front cost for the applicant rather than just excesse about the need for a rush deadline. Staff are real people who also occasionally need a few hours to sleep and occasionally to eat also. If the Applicant faits to provide required information in a timely manner, that is the applicant's problem, not to be pushed off on staff and the public because the applicant's real motive and need to get taxapser financing for a project that is still unproven on a scale proposed. Yes, it is all about money, not about meeting energy needs.

P11-3

13. How many members of the public would have been aware that the Project Applicant had submitted a SAFC that was posted on May 10, 2010? Even though I have ben participating as a witness for Intervenor Tom Budlong, I do not regularly check the CEC website to look for updates without first getting information from the CEC.

17. At the CEC Evidentiary Hearing in El Centro May 24-25, 2010 there were numerous topics of the SA/DEIS that were not considered for testimony because the CEC Staff had not had sufficient time or opportunity and/or the Applicant had failed to provide the necessary information to complete Staff Analysis, and or public review. Piecemealing project components and intentionally withholding information relevant to the changed project description (such as an assured water supply for future) appears to violate certainly the intent of the law.

P11-10

18. CEQA defines a project as "the whole of an action" which has the potential to result in a direct physical change in the environment, or a reasonably foresceable indirect physical change in the environment. The "Project" refers to the activity being approved and which may be subject to several discretionary approvals by distinct governmental agencies. The analysis must embrace future development that will foresceably occur if the agency approves the project and also include analysis of cumulative impacts associated with the changed project description which could not have been understood prior to the Applicant's posted changed description on May 10, 2010

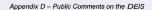
P11-11

Response: The evidentiary hearing process is a California Energy Commission (CEC) process and is outside the purview or control of the United States Bureau of Land Management (BLM). The conduct of those meetings, including providing call-in opportunities, is entirely up the CEC. It should be noted that the meetings were held in El Centro so interested members of the general public had the opportunity to attend those meetings in person rather than by calling in. All of the CEC methods for public participation or pending decisions are explained in detail on the CEC website. The CEC use of its website and docketing to provide access to the public for materials related to a proposed project is also a standard CEC process and, again, is outside the purview or control of the BLM. It is also very easy to enroll in the CEC's notification process regarding new information and updates as they are posted on the CEC websites and dockets.

The BLM believes the opportunities for public participation under the National Environmental Policy Act (NEPA) were adequate and included opportunities to review the draft Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) on either the BLM or CEC websites and that the additional information provided by the applicant was readily available on the CEC website.

There was no intent to piecemeal the project. The information provided at the CEC evidentiary hearings was in addition to the information provided in the SA/DEIS and on the CEC and BLM websites. Some of that information has also been provided in supplemental information posted by the CEC on its website. The BLM has documented analysis of the modified project components based on the minor changes in the project description in Chapter 4, Environmental Consequences, in the FEIS, which is also summarized in Appendix B, Determination of NEPA Adequacy (DNA). Refer also to Section 4.21, Determination of NEPA Adequacy, for additional discussion of the analysis of the proposed modifications.

Any comments or issues related to CEQA, as noted in comment P11-11, are not within the purview of the BLM and are comments that will be addressed by the CEC.



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### D.4.16 Determination of NEPA Adequacy

These comments raised questions regarding the adequacy of the NEPA analysis of the applicant proposed modifications to the Build Alternatives and of the Agency Preferred Alternative.

Comments: F2-26, O2-18, O6-2, O6-9, O6-12, O8-4, O8-15, O9-9, O9-11, O9-57, P11-6, and P11-39

### Newly Proposed Alternative Water Supply

The Supplement indicates the Project will rely on up to 50 acre-feet per year (afy) of withdrawals from an Alternative Water Supply (AWS) within the Ocotillo-Coyote Wells Groundwater Basin (OCWGB), a federally designated sole source aquifer, until water is made available from the upgraded SWWTF. The Supplement concludes the withdrawals from the AWS will have no significant impact on water levels in the area nor exacerbate overdraft of the OCWGB. It is our understanding from the Applicant that the AWS will result in no net increase in pumping. If this is so, this should be disclosed and adequately supported in the FEIS.

Information in the Supplement raises questions regarding whether adequate afy at the AWS is actually available. The AWS well is currently capped at a production rate of 40 afy, but the Project will require up to 50 afy. The Supplement does not provide information on how much of the 40 afy is already committed to other users. The most recent data provided in Appendix B in the URS Groundwater Evaluation Report (in the Supplement) indicate 42.1 afy was withdrawn from the AWS in 2004. This is the last year of withdrawal data provided in the Supplement. The Supplement appears to assume that Imperial County will allow additional withdrawals above the 40 afy, but there is no acknowledgement provided from the County. In fact, the opposite may be true. For example, the recently released draft Environmental Impact Report (DEIR) for the Coyote Wells (CW) project (aka, Wind Zero project) is proposed within the OCWGB and near the Boyer Well. The CW project intends to use up to 67 afy. The CW DEIR acknowledges the OCWGB is in an overdraft condition. It includes numerous groundwater mitigation measures not included in the Supplement. (See ftp://ftp.co.imperial.ca.us/icpds/eir/coyote-wells/19hydrology-water-quality.pdf.) It is not clear whether URS considered in its analysis the planned withdrawals by the CW project or the mitigation measures proposed for the CW project.

There are also questions concerning how long the AWS will be needed. The "Will Serve Letter" in Appendix A indicates the AWS will be required for six-to-eleven months, but the Supplement does not commit to a time frame for needing the water. Unanticipated delays in the upgrade of the SWWTF could occur.

Finally, the Supplement does not indicate whether the AWS withdrawals would impact nearby residential/private wells.

#### Recommendations:

- · Confirm the AWS will result in no net increase in pumping from the OCWGB.
- Address the discrepancy between the current 40 afy cap on the AWS and the increased 50 afy demand, and provide documentation that the County supports additional withdrawals from the AWS.

F2-26

- Because the OCWGB may already be in an overdraft condition, the FEIS should discuss the level of impact the AWS would have on the overdraft conditions in the OCWGB.
- Discuss the applicability of the mitigation measures included in the CW DEIR and whether the CW project water demand was considered in the Supplement's analysis.
- whether the CW project water demand was considered in the supplement's analyst

   Address whether the AWS withdrawals would impact nearby residential/private
  wells
- In light of the recommendations above, the FEIS should confirm the availability of a
  water supply for construction and operations of the Project and fully evaluate the
  environmental impacts associated with the ultimately proposed supply of water.

The FEIS should also further describe groundwater availability for this Project in light of other projects within the region, as well as the uncertainty regarding potential cumulative impacts on groundwater resources. Given the potential for adverse impacts from pumping groundwater, it is important that all monitoring and mitigation information be provided to the public and decision makers. The proposed Project would permanently eliminate thousands of acres of wildlife habitat. In the arid Mojave Desert, habitat and the springs are critically important for several special status species that rely on water sources and wetland vegetation communities. Our recommendations are further discussed in this letter's 'Cumulative Impacts' section.

The Project Description is inaccurate in several respects including regarding the water source for the project and the hydrogen supply and extent of hydrogen transport on the site as well as others. For example, the DEIS assumed that water would be available from the Seeley plant that now it is clear will not be—at least not in time for the proposed construction schedule—the proponent now proposes to use groundwater from a sole source aquifer that is already heavily impacted by other uses. The likely impacts from the proposed use of water from alternative sources are not adequately addressed. Similarly, the proponent has revised the plans for hydrogen transport and storage on the site but the new plans were not evaluated in the DEIS, and although there is some discussion of the likelihood of fire, there is no discussion of the impacts of fire on wildlands.

The Project Description may also (perhaps inadvertently) mislead the public by its characterization of the project as a 750 MW "nameplate" or "nominal". The DEIS notes that the project's actual capacity which is much lower—25% was used as an estimate in the DEIS E.4-2 and Appendix for Air Quality, Air-1-6, Greenhouse Gas Table 3, note c. Moreover, the Project Description and the DEIS as a whole fail to account for other power losses including line losses during hot days which can be significant. Because an accurate project description is vital to a fair comparison of alternatives, the DEIS should have more clearly discussed the capacity factor and other potential energy losses so that the actual output of this proposed project could be compared to similar projects.

F2-26

The Yuha Desert, where the Project is to be located, is a pristine but extraordinarily sensitive landscape. Damage to it from this Project is likely to be irreversible. "Implementation of this [P] project will forever change the landscape of this area," and also lead to "the pernanent destruction of hundreds of cultural resources. ...." The environmental devastation that this Project will cause is permanent, but the Project's benefits are only temporary. Nonetheless, the California Energy Commission ("CEC") and United States Bureau of Land Management ("BLM") are rushing through critical environmental reviews and omitting essential information for the sake of the Project applicant's arbitrary timetables. An applicant's supposed time constraints are not a recognized exception to the requirements of either the California Environmental Quality Act ("CEQA") or the National Environmental Policy Act ("NEPA"). It is crucial that a complete and thorough inquiry into the Project's impacts be made before the CEC and BLM commit themselves to allowing irreversible environmental damage.

The SA/DEIS fails to comply with CEQA and NEPA in seven distinct ways. First, it omits essential information and, as a result, fails as an informational document. Second, the SA/DEIS unlawfully defers the formulation of various studies and mitigation measures. Third, the assessment of the Project's environmental impacts is inadequate. Significant impacts are deemed insignificant and impacts that can be mitigated are mistakenly found to be unavoidable. Fourth, significant unstudied changes have been made to the Project since the SA/DEIS release, and significant new information is planned to be added to the SA/DEIS at a fature date, so the SA/DEIS was the recirculated and an additional public comment period provided. Fifth, the discussion of Alternatives is inadequate insofar as BLM declined to evaluate Site Alternatives on the sole basis that they are inconsistent with the applicant's purpose and need. Sixth, the SA/DEIS unlawfully segments the Project by failing to consider the impacts of the related Sunrise Powerlink project. Seventh, the Project applicant now proposes to satisfy the Project's water needs with well water, but such use of that water would violate the federal Safe Drinking Water Act because the underlying aquifer has been designated a "sole source aquifer" by the United States Environmental Protection Agency.

project." SA/DEIS, p. C.7-3. Yet the Project applicant has recently modified the Project so as to satisfy its water needs with groundwater. This substantial change must be recognized in the DEIS.

The DEIS' failure to acknowledge that the Project will use groundwater leads to the second inadequacy: the availability of this water, and the impacts of its use, are unknown because neither has been studied. As a result, it is impossible for members of the public to determine whether the Project's water needs can actually be satisfied in this manner. The environmental impacts of such use also have yet to be ascertained. CEC staff has noted that "the amount of water identified for project use." exceeds the permitted amount of groundwater extraction for the well." Staff Comments on Schedule Impacts of AFC Supplement, received May 17, 2010, p. 1. Furthermore, it is unknown how long groundwater will be used. The DEIS must be revised to include this critical information.

Third, the impacts that the Project will have on waters of the United States is unknown. The Project has the potential to cause massive amounts of runoff and erosion. Whether or not these impacts will be significant has yet to be determined because the Project applicant failed to include sufficient information in its application "to resolve uncertainties regarding the ability of the applicant-proposed measures to reduce sedimentation and stream morphology impacts to less than significant." The Project's consistency with section 404 of the Clean Water Act "cannot [be] determine[d] at this time." SA/DEIS, p. C.7-66. "This information must also be included in the SA/DEIS.

O6-2

O6-9

As discussed above, huge amounts of crucial information were omitted from the SA/DEIS. Moreover, the applicant's decision to modify the Project's water source would, as also discussed above, at the very least create a possibility of new significant environmental impacts. The public was significantly hindered in commenting on the Project by the absence of all of this information. In these situations, both NEPA and CEQA require recirculation of the environmental document. See, e.g., Pub. Res. Code § 21092. I (renotification required where significant new information is added to EIR prior to certification); Guidelines § 15088.5 (new information is significant, and recirculation accordingly required, where the EIR "deprives the public of a meaningful opportunity to comment upon" the project's significant impacts or mitigation measures); 40 C.F.R. § 1502.9(c)(1) (agencies "shall prepare supplements to ... draft ... environmental impact statements" where "substantial changes" are made to the Project or "significant environmental impact statements" where "substantial changes" are made to the Project or "significant environmental impact statements where "substantial changes" are made to the Project or "significant environmental impact statements on the project or significant on the natempt to fix its problems out of the public eye. If significant new information is added to the SA/DEIS, it must be recirculated.

O6-12

# Applicant's pressure to move the CEC/BLM process forward without critical data for the "whole of the project", and for "overrides" is unconscionable

The CEC/BLM should deny the applicant's repeated request made at the May evidentiary hearings to move forward with project review /approval without waiting for the EIR for the Sealey Waste Water Treatment Facility (proposed permanent water source), the resolution of the legality and viability of exporting 40 acre feet per year of at risk desert ground water resources (backup water source) from the Cottillo/Coyole Wells Soile Source Aquiffer for industrial use, and the US Army Corps determination of the Least Environmentally Damaging Practicable Alternative project. The issues represent the whole of the project along with the other outstanding information and should be reviewed and analyzed by staff and the public.

Water source issues / Ocotillo -Coyote Wells Sole Source Aquifer / What is replacement water source for the residents of impacted rural desert communities when industrial use exports decrease and degrade their sole source aquifer?

- Like Sunrise Powerlink, the Solar Two / IV Solar water source is still unstudied and unsecured.
- The belated backup alternative to use groundwater from Ocotillo, is a non starter.
- The Applicant's response to CURE letter of May 10 is both ignorant and callus in its disregard for
  the significant negative impacts their proposed groundwater export represents to the low
  income rural desert communities that rely on the at-risk aquifer to sustain them.
- Figure 1-4 in the May 5 submittal shows the proximity of the proposed Ocotillo water well source and the US Gypsum wells.
- Section 2.5 of the Supplemental downplays the significance of the sole source aquifer designation.
- In 1996, I helped concerned citizens in Ocotillo apply for and secure federal designation of the
  Ocotillo / Coyote Wells Sole Source Aquifer, after our group BAD secured the
  Campo/Cottonwood Creek Sole Source Aquifer designation in 1993. These are the only two sole
  source aquifers in Southern California.
- Link to Ocotillo / Coyote Wells Sole Source Aquifer boundary map: <a href="http://www.epa.gov/safewater/sourcewater/pubs/qrg">http://www.epa.gov/safewater/sourcewater/pubs/qrg</a> ssamap ocotillocoyotewells.pdf
- The EPA's Sole Source Aquifer (SSA) Program was established under Section 1424(e) of the Safe Drinking Water Act (SDWA.) Since 1977, it has been used by communities to help prevent contamination of groundwater from federally-funded projects. It has increased public awareness of the vulnerability of groundwater resources. The SSA program allows for EPA environmental review of any project which is financially assisted by federal grants or federal

loan guarantees. These projects are evaluated to determine whether they have the potential to contaminate a sole source aquifer: <a href="http://www.epa.gov/region9/water/groundwater/ssa.html">http://www.epa.gov/region9/water/groundwater/ssa.html</a>

- The State Water Resources Control Board (State Water Board) Clean Water State Revolving
  Fund Program Federal Cross-cutting Environmental Regulations Evaluation Form for
  Environmental Review and Federal Coordination questionnaire includes a Water Sources
  question that asks if the project is in the boundaries of a SSA. The Ocotillo/Coyote Wells Aquifer
  is one of the five California SSAs listed See the document at the link copied below:
  <a href="https://www.warcb.ca.gov/water-issues/programs/prants-loans/st/idocs/envcompliance/federal\_cross\_cutting\_eval\_
  station\_form\_off">https://www.warcb.ca.gov/water-issues/programs/prants-loans/st/idocs/envcompliance/federal\_cross\_cutting\_eval\_
  station\_form\_off</a>
- At a minimum a site specific study and full EIR would be legally required to determine the impacts to the Ocotillo source well(s) and aquifer which are located wholly within the boundaries of the federally designated Ocotillo / Coyote Wells Sole Source Aquifer.
- The US Gypsum wallboard plant next door, already pipes in precious groundwater from Ocotillo 8 miles to the west. This has resulted in litigation. US Gypsum was supposed to stop using that groundwater when they got approval for 1,000 ac feet of canal water from Imperial Irrigation District. But they need a new pipeline similar to the one proposed for IV Solar / Solar Two.
- That pipeline needs a Biological Opinion from Fish & Wildlife, but due to the administration's pressure to fast track renewable energy projects like this one, that Biological Opinion has been placed on hold indefinitely (confirmed May 17 by FWS staff).
- As a result, US Gypsum continues to pump hundreds of acre feet of irreplaceable desert groundwater from a residential area that has no alternate water supply.
- Now this project wants to take another 40 acre feet from them which in my opinion is immoral, unlawful and unethical.
- Here is a quote from the attached July 14, 2006 RWQCB Memorandum, addressed to Donna Tisdale, regarding the proposed US Gypsum Expansion / Modernization Project (EIR/EIS Sch. No. 200112133) and increased export / use of Ocotillo groundwater:

"We acknowledge the Regional Boards limitation to control groundwater extraction/pumping lie., lack of jurisdiction over water rights issues). Nevertheless, we feel biligated to welgh in the subject matter because the projected impact is on waters of the State, and the project as proposed practically could eliminate the <u>Municipal Supphy</u> beneficial use of an aquifer. The impact may be economically Irreversible, is in direct canflict with the Basin Plan, and short-changes water quality. Consequently, it is aur intention to recommend the Regional Board use any and all of its available powers to protect the area's graundwater resources for current and future generations."

(iii) Are interdependent parts of a larger action and depend on the larger action for their justification.<sup>8</sup>

Further, NEPA requires that a supplemental EIS be prepared when "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." A supplemental EIS is required if a new proposal "will have a significant impact on the environment in a manner not previously evaluated and considered." The new water source from the Dan Boyer Water Company is one example of new information that necessitates recirculation of a supplemental EIS.

The CEQ Guidelines require agencies to "prepare supplements to either draft or final environmental impact statements if: (i) the agency makes substantial changes in the proposed action that are relevant to environmental concerns; or (ii) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."

Here, it is undisputed that the proposed Project cannot be constructed or operated without a reliable source of water. As with all development in the arid West, finding an assured water supply is one of the most important planning decisions that must be made before a Project can legally be approved. An identified reliable source of water for construction and operation of a project is largely determinative of the project's overall viability. Because the water supply is a critical part of the Project without which the Project cannot proceed, impacts resulting from the acquisition of water for the Project are connected actions that must be analyzed in a revised DEIS that is circulated for public review and comment.

### B. GROUNDWATER - DAN BOYER WATER COMPANY

The DEIS unequivocally and repeatedly states that the Project will not rely upon groundwater23 and will rely upon recycled wastewater from the SWWTP. This is simply false. On May 6, 2010, the Applicant docketed information with the Energy Commission and BLM that outlines the Applicant's plan to use groundwater as its primary water supply for the first three years and potentially for the life of the Project. This new water supply, the Dan Boyer Water Company, requires a whole new analysis by the reviewing agencies and the public. The Dan Boyer well that would be used for the Project is in the Coyote Wells Aquifer, an aquifer designated by the US Environmental Protection Agency ("EPA") as a "sole source" aquifer.26 This means that the EPA has determined that the Coyote Wells Aguifer is the sole or principal source of drinking water for the communities of Ocotillo, Nomirage, Yuha Estates, and Coyote Wells and that if contaminated, this aquifer would create a significant hazard to public health.27 As a result, all Federal financially assisted projects that could impact the Ocotillo-Coyote Wells aquifer will be subject to EPA review to ensure that these projects are designed and constructed such that they do not create a significant hazard to public health.28 Personal communications with the EPA reveal that this review has not even begun.29 In fact, the BLM had not even contacted the EPA's groundwater office as of May 13, 2010.30

09-11

The Coyote Wells aquifer is currently in overdraft condition, and additional drawdown could potentially result in degradation of the quality of the water for the residents of the surrounding communities that rely upon this aquifer for their drinking water supply. The public should be given adequate notice that this water supply is proposed to be used for the life of the Project. The Project water supply is a core aspect of the proposed action under NEPA. Because the DEIS does not include any information about this water supply, the DEIS must be revised with a complete analysis of the potentially significant impacts from the use of groundwater in a revised DEIS and must recirculate the revised DEIS for public review and comment.

09-11

### C. CONCLUSION

Both the Dan Boyer groundwater supply and the SWWTP are connected actions under NEPA and, as such, must be studied by the BLM in the same environmental document as the proposed action. Since this was not done in the DEIS, a revised DEIS must be prepared and circulated for public review.

### a. Water Supply

The Applicant changed the water source for the Project, rendering many sections of analysis in the DEIS incomplete and/or incorrect. At the 11th hour, the Applicant determined that a wholly new water source would be used for the Project: the Dan Boyer well. This new water source will pump water from a depleted sole source aquifer. This is a wholly unanalyzed significant impact on the environment.

Supplemental EISs are required when "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." <sup>154</sup> An SEIS is required if a new proposal "will have a significant impact on the environment in a manner not previously evaluated and considered." <sup>135</sup>

09-57

The CEQ Guidelines require agencies to "prepare supplements to either draft or final environmental impact statements if:

(i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.\* <sup>1166</sup>

12. IV Solar Project description has been a moving target and the SA/DEIS does not reflect the current state of the project description under the May 10, 2010 posting of the Applicant's Supplement to the Application for Certification URS Project No. 27657106.00806" (SAFC)

P11-6

- 106. My conclusions about the proposed Alternative water source are that
  - First and most important, the monitoring data provided is not current even though it is
    possible to get current USGS data online.
  - b. In the absence of monitoring data it is not possible to reach the conclusion that impacts of well interference at the Boyer well location will not be significant.

P11-39

 Accordingly it would be inappropriate to conclude that the proposed well with its lack of pumping withdrawal information would not have an adverse impact if it began pumping and exporting 40 AF/y.

Response: As described in the Final Environmental Impact Statement (FEIS), the Imperial Valley Solar (IVS) project and the other Build Alternatives include specific modifications to minimize project impacts and to incorporate modifications from the applicant. Those modifications are described and evaluated in Chapter 4, Environmental Consequences, in the FEIS. Appendix B, Determination of NEPA Adequacy (DNA), in the FEIS summarizes the

evaluations of each of those modifications and the determinations that they are within the range of the alternatives and impacts documented in the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) and the FEIS, and that the NEPA analyses in the SA/DEIS and FEIS are adequate to document the impacts of the Build Alternatives with those modifications. These modifications are considered part of the Build Alternatives and not connected actions.

The project modifications analyzed in Chapter 4 and documented in Appendix B in the FEIS for all the Build Alternatives are:

- Two minor shifts in the transmission line. The western transmission line alignment
  modification would occur over a 750 ft long span which would be shifted
  approximately 120 ft southeast of the original alignment in the IVS project. The
  second modification (north of the Imperial Valley San Diego Gas and Electric
  (SDG&E) Substation) would occur over a 1,025 ft long span which would be shifted
  approximately 300 ft east of the original alignment in the IVS project.
- Two minor shifts in the water pipeline between the project site and the Seeley
  Wastewater Treatment Plant (SWWTP) to follow the Evan Hewes Highway right-ofway (ROW) where feasible.
- Modifications in the onsite hydrogen storage system. The IVS project proposed a centralized hydrogen gas supply, storage, and distribution system. Modifications proposed to this system would require the amount of hydrogen stored for each SunCatcher to be increased from 3.4 to 11 standard cubic feet (scf). To support this increase in hydrogen storage for each SunCatcher, the high pressure supply tanks and low pressure dump tanks at each compressor group would accommodate 29,333 scf and 9,900 scf, respectively. In addition, each of the 30 high pressure tanks that supply hydrogen to the power conversion units within a group of 12 SunCatchers under the current design will have a capacity of 489 scf.
- An alternative water supply for initial construction and operations. This alternative water supply would be provided through the Dan Boyer Water Company in Occililo. That water source is potable and permitted for use by construction or personal consumption. It is expected that the Build Alternatives would require this temporary water supply for between 6 months and 3 years. Water would be transported to the project site by 7,000 gallon (gal) water trucks. It is anticipated that up to 13 truck trips per day would be required during construction and up to 7 truck trips per day would be required during operation until treated water from the SWWTP becomes available.

The alternative water source is not expected to adversely affect the Ocotillo-Coyote Wells sole source aquifer because it is a currently permitted well and the applicant will use only the amount of water currently permitted to be drawn from that well. Because that amount is currently permitted, it is assumed not to result in adverse impacts to the sole source aquifer. Appendix B, Determination of NEPA Adequacy (DNA), in the FEIS discusses the use of the alternative water source in greater detail.

### D.4.17 No Response Necessary

These comments made statements or other comments which did not require a specific response.

Comments: F2-4, F2-8, F2-11, NA1-1, NA1-19, S2-1, S2-6, L2-1, L2-17, O1-17, O1-23, O3-1, O4-12, O6-1, O8-1, O8-3, O8-5, O8-8, O8-12, O8-13, O8-16, O8-23, O8-26, O8-27, O9-7, O9-12, O9-42, O10-1, P2-2, P7-8, P7-9, P8-1, P9-3, P10-3, P10-4, P10-5, P11-1, P11-4, P11-9, P11-17, P11-18, P11-20, P11-22, P11-26, P11-28, P11-29, P11-30, P11-32, P11-33, P11-34, P11-37, P11-39, P11-40, P12-1, P12-2, P12-6, P12-7, and P12-8.

Based on our review of the DEIS, we have rated the document as Environmental Objections - Insufficient Information (EO-2). Please see the enclosed "Summary of EPA Rating Definitions." An "EO" signifies that EPA's review of the DEIS has identified potential significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may involve substantial changes to the Project. A "2" rating signifies that the DEIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment.

F2-4

In the enclosed detailed comments, EPA further describes and provides specific recommendations pertaining (o: 1) impacts to aquatic and biological resources; 2) impacts to endangered species and other species of concern; 3) impacts to air quality; 4) cumulative impacts from reasonably foreseeable future actions; 5) impacts to cultural resources and tribal consultation; 6) current justification for the Project purpose and need; and, 7) a reasonable range of alternatives.

F2-8

### Project Description

Tessera Solar North America (Applicant) has submitted a right-of-way application to the Bureau of Land Management (BLM) to construct a solar thermal power plant facility approximately 14 miles west of El Centro, California in Imperial County. The Imperial Valley Solar Project (Project) (formerly known as SES Two) would be constructed in two phases utilizing SunCatcher technology, and would include approximately 3/00.02 5k llowart (kw) solar power dishes with a total generating capacity of approximately 750 megawatts (MW). Phase I would consist of up to 12/00 SunCatchers configured in arrays of 200 1.5 MW solar groups (60 SunCatchers/1.5 MW group) with a generating capacity of 450 mt 300 MW. Phase I would consist of approximately 18,000 SunCatchers configured in 500 1.5 MW groups with a net generating capacity of 450 MW. Each SunCatcher system consists of a 38x40 foot wide solar concentrator dish that supports an array of curved glass mirror facets designed to automatically track the sun and focus solar energy not a Power Conversion Unit which generates electricity.

F2-11

Related structures include a main services complex, assembly buildings, a 230-kilovolts (kV) electrical substation, access roads, and a 10-mile 230kV transmission line from the Project site to the existing substation. Additionally, water needs for the proposed Project would be met by a new 12 mile water supply line from the Seeley Waste Water Treatment Facility (SWWTF). The Project would be located on approximately 6,500 acres of land, including 6,140 acres of BLM-administered public land and approximately 360 acres of privately owned land.

EPA recommends that the Final EIS (FEIS) provide additional analyses (including any necessary supporting documentation) and identify specific minimization or mitigation measures, as appropriate, regarding the issue areas below.

On behalf of the Quechan Indian Tribe, we submit these comments on the Staff Assessment/Draft Environmental Impact Statement (herein, "DEIS") and the Draft California Desert Conservation Area Plan Amendment for the Imperial Valley Solar Project (formerly known as Solar Two). At this time, given the significant presence of hundreds of cultural resources on the lands at issue, the inadequate efforts to identify cultural resources, and the improper deferral of evaluation of cultural resources until after the record of decision, the Tribe supports No Action Alternative #1 (deny ROW application and not amend the CDCA Land Use Plan of 1980). The preferred alternative for development, and proposed plan amendment, would severely and permanently impact an undisturbed sensitive area for cultural resources, in exchange for an energy development with an anticipated 40-year life span. BLM and the CEC should not approve the permanent destruction of pre-historic and historic resources in exchange

NA1-1

### IV. Conclusion.

In conclusion, the Tribe urges the BLM/CEC to revise the DEIS in accordance with these comments, to properly consult with the Tribe as required by law, and to ultimately select the no-action alternative, deny the ROW application, and not amend the CDCA Land Use Plan, based on the project's anticipated impacts to an area of high cultural sensitivity. Thank you for your consideration to these comments.

NA1-19

The Colorado Desert District of the California Department of Parks and Recreation (State Parks) offers the following comments for the above project.

S2-1

The Colorado Desert District of the California Department of Parks and Recreation (State Parks) appreciates the opportunity to provide comments on, and express our concerns, about the proposed Imperial Valley Solar project.

The County Planning & Development Services staff has reviewed the proposed project and the environmental document that the CEC and the BLM are preparing for the above project, i.e. Supplemental Staff Assessment (SSA)/Draft Environmental Impact Statement (DEIS). The County has previously submitted comments on the 10-square miles, approximately 6,500 acres (360 acres of private lands), with approximately 275 miles of roads. The deadline for comments on the Imperial Valley Solar Project (IVSP) project is May 27, 2010 and these additional comments are hereby provided:

We look forward to working with the BLM and the CEC staff in the continued processing of the Imperial Valley Solar Project.

If you have questions on the above, please contact me at (760) 482-4236, extension 4278, or via e-mail at jimminnick@co.imperial.ca.us.

p. B.2-117. The assumption that 5-10 projects smaller than 750 MW would be required to create a capacity equivalent to SES Solar Two has a very shaky foundation of effectively only two examples. Geothermal has a much higher capacity factor than solar, so would require much less land than solar for equivalent electricity production.

# D.5 Transmission System Engineering

Has nothing relevant to environment

Section C also was searched for discussion of LORS relevant to site "restoration" in keeping with the statement made on page E-11 cited above about the location of LORS pertaining to facility closure, with the following results

Thank you for the opportunity to submit comments on the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) for the proposed Solar Two Project. These comments are submitted on behalf of Defenders of Waldife ("Defenders"), a non-profit public interest conservation organization with over 1,000,000 members and supporters nationally, 200,000 of whom are in California.

Defenders is dedicated to protecting wild animals and plants in their natural communities. To achieve this end, Defenders employs science, public education and participation, media, legislative advocacy, litigation, and proactive on-the-ground solutions in order to impede the accelerating rate of extinction of species, associated loss of biological diversity, and habitat alteration and destruction.

Defenders strongly supports the emission reduction goals found in the Global Warming Solutions Act of 2006, AB 32, including the development of renewable energy in California. However, we urge that in secking to meet our renewable energy portfolio standard in California, project proponents design their projects in the most sustainable manner possible. This is essential to ensure that project approval moves forward expeditiously and in a manner that does not sacrifice our fragile desert landscape and wildlife in the rush to meet our renewable energy goals.

We strongly support renewable energy production and utilization, but we do not consider the construction of large-scale projects, and especially the very large solar energy projects proposed on undisturbed public lands in the California Desert Conservation Area, to be the primary way to meet our renewable energy goals. We believe such large scale solar projects must be located on degraded or disturbed land such as abandoned agricultural fields, industrial sites, and near existing structures before public lands containing natural plant and animal communities are considered.

The proposed project would entail the exclusive use of approximately 6,500 acres, nearly all of which is public land administered by the Bureau of Land Management (BLM). The project would entail the construction, operation, and eventual decommissioning of a Sterling solar disk engine facility with a rated power output of up to 750 MW. The proposed project would entail the construction, installation and operation of approximately 30,000 dish engine units. Various alternatives to the applicant's proposed project are identified in the SA/DEIS, some of which would be located on smaller land areas, have fewer dish engine units and have reduced electrical energy generation.

Lastly, we are concerned, as indicated above, about the new information, including the new proposal, new project features and new biological information that have been developed since the

04-12

O3-1

DEIS was printed. BLM should make every effor: to ensure that this information is made available to the public (and other agencies) along with assessments and analyses of the information as well as that the public is given an opportunity to comment thereon. Public input on agency proposals is one of the hallmarks of NEPA review and it is to prevent the undermining of that critical aspect that limits have been imposed on agency efforts to "load up" final EISs with excessive amounts of new information.

04-12

In conclusion, this project appears to have fewer resource conflicts than some of the other sites currently being reviewed for fast-track projects, but nonetheless the impacts to the resources identified in these comments and to other desert resources must be fully analyzed and mitigated through the BLM process. As we have previously noted, renewable development is not appropriate everywhere on the public lands and must be balanced against the equally urgent need to protect unique and sensitive resources of the CDCA. California is lucky indeed that we have sufficient renewable resources, including solar resources, to do their development in an environmentally responsible manner.

06-1

On behalf of Backcountry Against Dumps, the Protect Our Communities Foundation, the East County Community Action Coalition, and the Desert Protective Council, we respectfully submit the following comments regarding the Staff Assessment/Draft Environmental Impact Statement ("SA/DEIS") and Draft California Desert Conservation Area ("CDCA") Plan Amendment for the Imperial Valley Solar Project (Project (Project) (Pro

These comments are being submitted on behalf of myself as an individual, my extended family that resides in the Imperial Valley, and Backcountry Against Dumps (BAD), an all-volunteer public benefit non-profit I co-founded in 1989. Our attorney is also filing comments on our behalf. Just like agency staff, we are overwhelmed with these many fast tracked large-scale energy / transmission projects, and a lack of adequate time and money.

Our group originally formed to fend off a private 600 acre landfill on tribal land abutting private properties reliant on well water. To date, that landfill has not been built despite repeated efforts. We have since expanded our efforts to address other inappropriate development that negatively impacts rural and communities and the natural resources that sustain them and the wildlands and open spaces that surround them that add value and beauty to rural properties and quality of life. These scenic resources support an abundant and diverse wildlife population. They also provide a much needed respite from urban sprawl, traffic, hustle, and noise levels, allowing one to commune with nature and get a sense of what our ancestors and the ancient ones saw, knew, and enjoyed. They also generate recreational tourism and much needed income for our local businesses. It has been reported that gazing upon an open vists can reduce a person's blood pressure by 10 degrees.

We support increased energy conservation and efficiency and renewable energy at or close to the point of use that utilizes existing structures and already disturbed lands, and that do not need extensive, expensive and destruction transmission lines and corridors, like SDG&E's Sunrise Powerlink, that fragment and degrade sensitive habitat, dissect rural communities, take land through eminent domain, displace an /or kill wildlife, and introduce new threats of wildfire ignition in high fire danger areas with dense vegetation that are prone to high wind events. Powerlines have started numerous catastrophic wildfires in Eastern San Diego County in 2003, 2007, 1970 and more. More remote renewables means

more powerlines strung through our ruggedly beautiful and fire prone Eastern San Diego wildlands and rural neighborhoods, including the McCain Valley Resource Conservation Area, McCain Valley recreation area the Clieveland National Forest, and more

We offer these comments in the hope that our state and faderal decision makers will experience an epiphany and recognize that these large scale remote energy projects are not the best, the shortest, the least expensive, or the least damaging path to reach stated goals of weaning our state and our country from reliance on fossil fuels.

## Cold project "location description" leaves out beauty of the area

If you did not know the area, you would never know from the project description that the area is a gently rolling desert landscape with glistening desert pavement made up of millions of small and individually unique and beautiful multi-colored stones, criss-crossed with braided desert washes that carry storm water to the Sony Bono Salton Sea National Wildlife Refuge, with the most diverse array of bird species of any national wildlife refuge. Nature's storm channels are ripe with diverse and wonderful desert vegetation that survives blistering summers and droughts yet bursts into amazingly lush bloom when the rains come at the right time and in the right amount. Their rippled sandy bottoms show evidence of many tiny feet and tall trails leading to serce the britows in the channel banks and under sheltering bushes. The vegetation is tempting enough to entice the Bighorn sheep that were photographed on the site last spring and who no doubt have returned, and will return, for many more meals. The area also serves as forage for many and varied raptors and other species.



**OB-1** 

### Late stage name change from SES Solar Two to Imperial Valley Solar

Project name changes can create problems for the public to follow the project and/or to conduct research on previous project reviews / issues / articles. Unfortunately, this tactic is a not uncommon practice for controversial projects. Once a project starts the environmental review process they should not be allowed to change the name.

O8-3

We Support the No Action / No Project / CDCA Plan Amendment to make the area *unavailable* for future solar or other development. It is not the best use of public lands and /or funds

For the reasons stated in this letter, and those stated by others during this process, this project should not move forward. It is not needed and is not the best and highest benefit use of public lands. Nor is it in the best interest of the public, taxpayers, ratepayers, the environment, widlife, historic, cultural, visual, and / or recreational resources. The land and resources should be protected from development and remain open for limited public use and enjoyment as is currently allowed.

O8-5

- If the project moves forward, a smaller demonstration project should be required prior to transforming environmentally and culturally sensitive public recreation lands and sacred sites into a privately owned industrial facilities—at the expense of tax and rate payers.
- Disturbed farmland identified east of Dunaway Road on both sides of I-8 could be used for the demo project. It is close to an existing substation near Evan Hewes Hwy and is closer to potential water sources.

D.3.13 Power plant efficiency (SA/DEISpg D.3-12): If constructed and operated as proposed SES Solar Two would occupy approximately eight acres per MW of power output, almost double that of other solar technologies. "Staff believes Solar Two represents one of the least land use-efficient solar technologies currently available." This impact alone should stop the project.

- SDG&E's ECO Substation: Scoping comments on PUC/BLM EIR/EIS , February 10, 2010, Bill Powers, P.E., another Sunrise Powerlink "connected action" and "Indirect Effect".
- Southern California Edison (SCE) has unveiled plans to install 16,300 solar panels on the roof
  of a 436,000-qt facility in Risko, California: https://solar.energy-businessreview.com/news/scc to install solar panels in rialto california 100319/

PUC Press Release: Docket A 08-03-015: Edison's 500 MW Solar Roof program: quoted Commissioner John A. Bohn, author of the decision: "This decision is a major step forward in diversifying the mix of renewable resources in California and spurring the development of a new market niche for large scale roofpo solar applications. Unlike other generation resources, these projects can get built quickly and without the need for expensive new transmission lines. And since they are built on existing structures, these projects are extremely benign from an environmental standpoint, with neither land use, water, or air emission impacts. By authorizing both utility-owned and private development of these projects we hope to get the best from both types of ownership structures, promotting competition as well as fostering the modi development of this nascent market."

- The 500 MW SCE urban warehouse PV project is meeting the price range identified by RETI Phase 28 for thin-film PV. SCE just signed a contract with Sunpower for Sunpower to provide 200 MW of panels to SCE to develop a portion of this project. SCE says in the press release it has entered this deal with Sunpower to fulfill its obligation (under the CPUC authorization) to install the PV systems for \$3.50/McC (\*54.00/McC).
- SEC's estimated cost for their 200 MW rooftop PV is a reported \$875 million and does not need new transmission (see attached SNL Financial 3-10-10), while the Sunrise Powerlink alone, without any generation is \$1.9 - \$3 billion
- Stirling Solar needs Sunrise Powerlink so the cost of the reportedly necessary transmission has to be considered as part of the whole of the project/action
- The USEPA in its comments on the Solar Energy Development PEIS (September 8, 2009) stated that wholesale and retail distributed generation deserves further consideration. It notes that an estimated 77,000 MW potential has been identified with small-scale projects near existing power substations throughout California. The EPA further states that distributed generation benefits include fewer environmental impacts than large scale projects, reducing generation costs through reduced line loss, reduced congestion, reduced peak demand loads, which enhance the efficiency, reliability and operational benefits of the distribution system and improve the overall security of our energy supply.
- The Department of Energy is the advancing the Net-Zero Energy Commercial Building Initiative. See some examples, including the near zero Audubon Debs Park building at: http://www1.eere.energy.gov/buildings/commercial initiative/zero\_energy\_projects.html
- New Calgreen building codes require new energy efficiency, "CALGREEN will use the longstanding, successful enforcement infrastructure that the state has established to enforce its health, safety, fire, energy and structural building codes. Many of the mandatory provisions in

the code are already part of the statewide building code, making verification of CALGREEN an easy transition for local building inspectors." <a href="http://gov.ca.gov/press-release/14186/">http://gov.ca.gov/press-release/14186/</a>

• The County of San Diego has plugged into the CaliforniaFIRST program to allow San Diegans to spread the cost of the rooftop solar electric systems over 20 years on the their property tax bill. The County also sponsored State legislation signed into law in October to compensate solar customers for supplus energy. The new County Operations Center will meet the US Green Building Council LEED standards. The County won the 2009 "Organizational Excellence Sandee" award from the California Center for Sustainable Energy beating out other regional governments.

08-12

- Solar PV panel systems can now be leased through several companies with or without upfront
  costs. Our research indicates that the cost for a 1,400 sq ft home (most of our rural homes are
  modest) and 20-year agreement with PV system maintenance included, would be approximately
  S135 per month—with an option to buy the system outright. Organizations like One Block Off the
  Grid also Grie ways for neighborhoods and communities to go solar at discounted prices.
- CPUC's Distributed Generation page is copied below: <a href="http://www.cpuc.ca.gov/PUC/energy/DistGen/">http://www.cpuc.ca.gov/PUC/energy/DistGen/</a>

### Utility Solar and Fuel Cell Procurement

### " Southern California Edison

- On June 18, 2009, <u>Decision (D.199-66-049</u> authorized Southern California Edison (SCE) to build and own 250 megawatis of utility-owned solar photovolatic capacity and be execute contracts up to 250 MW for generation from similar facilities owned and maintained by independent Power Producers (IPP) through a competitive solicitation process.
- The CPUC oversight of the <u>SCE Solar Program</u> is handled as part of <u>A.08-03-015</u>.

### San Diego Gas and Electric

 On July 11, 2008. San Diego Gas and Electric (SDGAE) filed <u>A.08-07-017</u>, seeking CPUC approval of its proposal to install 52 MWC (cc) of distributed solar PV systems with single-exis tracking at the distribution level. SDGAE proposes to spend \$250 million on the project, which it would later recover in rates.

On March 20, 2009 SDG&E and three other parties filed a settlement that would modify the original application by reducing to 26 MWs the utility-owned portion of the project and adding a competitive procurement mechanism for solar PPAs from IPP-owned projects, as well as an experimental competition between utility and IPP-owned projects and a fund for innovative technologies. Testimony from parties on the settlement parement is due in August 2009.

### Pacific Gas and Electric (PG&E) Solar Program

 On February 24, 2009, PG&E filed <u>A.09-02-019</u>, a five-year program to develop up to 500 MW of midsized (typically 1 to 20 MW) solar PV projects in PG&E's distribution grid. Under the proposal, ownership

of the projects would be split between PG&E and non-utility IPPs. PG&E would own 250 MW at an anticipated capital cost of \$1.45 billion, and it would execute contracts for electricity from 250 MW of projects owned by non-utility developers.

### SCE and PG&E Fuel Cells

On April Bh, 2010, the Commission approved, with modifications, the applications of Pacific Gas
and Electric Company (PG&E) and Southern California Edison Company (SCE) for approval of each
utility's Fuel Cali Project to install utility-owned fuel cells on several University of California and
California State University campuses. The decision finds it reasonable for the utilities to proceed with
their respective Fuel Cell Projects, as long as the projects are modified in two respects. First, PG&E
and SCE shall each reduce their project capital costs to reflect a lower contingency percentage.
 Second, PG&E shall remove contingency costs and education and outreach labor costs from its
estimated non-fuel operations and maintenance costs.

Note how pitifully small SDG&E's distributed solar projects are when compared to SCE's and PG&E's 500 MW distributed PV projects as listed on the PUC page, and then read the article below:

Utilities take a dim view on DG Solar(8-25-09): <a href="http://www.newsweek.com/id/213468">http://www.newsweek.com/id/213468</a>:

"In 2008, 33,500 rooftop solar systems were installed in the United Stutes, a 63 percent increase over the amount of capacity Installed in 2001. In California, the solar capital of country, the increase was 95 percent. Meanwhile, the authock for the other side of the solar industry—the large, centralized power plants—inst so sunny. These megaprojects—think acres of desert landscape covered in thousands of solar panels sending electricity through transmission lines—controlled mostly by utility companies that have had a monopoly over the country's electricity grid since the turn of the last century, were supposed to be the key to the future of the solar industry. So far, they're getting vastly outpaced by the decentralized rooftop approach. According to the interstate Renewable Energy Council's 2006-08 count, consumers added \$32 megawatts to the arid: whereas utility central sites added but 96 meanwatts\*.

If SDG&E and others put their money into projects similar to SCE and PG&E's distributed PV projects, instead of projects like IV Solar and the \$2.5 ablilion Sunits's Powlerink, which generates no energy whatsoever (but lots of profits for shareholders at ratepayers expense), they could potentially install an estimated 1,000 MW of distributed PV for approximately \$4.3 billion (based on SCE's reported \$875 million for 200 MW), without the added expense and time expended on the Sunrise Powerlink and related issues. An estimated 2,500 to \$,000 MW on existing structures and disturbed lands, close to the point of use, exists in the \$6.01 piego urban basin.

Instead, we are looking at ratepayers funding the \$2-3 billion Sunrise Powerlink, another \$250 million or SDG&E's ECO Substation, plus multiple large scale remote projects such as IV Solar for another \$2 billion, many on public land with public funds (an estimated \$600 million at least for IV Solar alone), at great cost both financially and through loss of value of impacted public and private lands, habitat, wildlife, public access, visual, recreational, cultural and other resources. Some impacts cannot even have a dollar amount placed on them because of the nature of their value.

#### **Environmental Justice**

Imperial Valley Solar and US Gypsum are alarming examples of Environmental Justice (EJ) issues
where big corporate interests use and abuse small rural low-income, and often minority,

O8-16

communities and their resources for their own financial gain—at the expense of the often defenseless community.

- Exporting finite desert groundwater resource, in a basin with virtually no recharge, from lowincome rural community, and transforming sensitive lands, habitat and cultural resources, including open views, and culturally significant properties and landscapes, in order to generate energy and wallboard for use in distant urban areas is a classic El scenario.
- The promise of jobs, few if any for Ocotillo area residents, does not make up for the rape of the
  area's resources, property values, and quality of life.

### Cultural & Historic Resources:

We share the concerns and values expressed by the NPS, the Quechan tribal representatives, Carmen Lucas, Preston Arrow-weed, Edle Harmon, and others who have raised issues and alarms regarding the necessary and desired protection of significant cultural and historic resources that play a part in so many lives. They need to be preserved and protected for current and future generations. A quiet sense of time, open space and place, with distant views, is part of our American West Culture and tradition.

### Conclusion:

For all the reasons stated here, the SA/DEIS must be recirculated to incorporate the whole of the project / action and to comply with both CEQA and NEPA. We request that the No Project / No Action alternative be adopted and this sensitive site be protected from potential future development via a CDCA Plan Amendment that prohibits future development of solar or other projects.

**O8-16** 

08-23

## Exhibit list for Tisdale / Backcountry Against Dumps comments on IV Solar / Solar Two SA/DEIS: Docket 08-AFC-5

- 1. Federal Complaint against Sunrisc Powerlink filed 2-16-10
- 2. Hurricane Kathleen photo showing damage in Ocotillo: September 1976
- 3. Sandia News Release 7-7-09: New SunCatcher unveiled at national thermal test facility
- 4. Renewables need helping hand from gas: San Diego UT 5-23-10
- 5. Congressman Filner's letter to DOI Sec. Salazar re: David Hayes conflict: 4-13-10
- 6. CPUC's Sunrise Powerlink Modification Report: 5-14-10
- 7. Cleveland National Forest Press Release: 45-day comment on Sunrise Powerlink: 5-15-10
- 8. Energy Business Review 3-19-10: SCE To Install Solar Panels in Rialto, California
- 9. CEC Cancels Gas-Fed Peaker, Suggesting Rooftop PV Equally Cost-Effective: Nat. Gas & Elec. 8-09
- 10. Bill Power's Ivanpah Solar testimony: 12-16-09
- 11. Bill Power's ECO Substation scoping comments: 2-10-10
- 12. DOE Net Zero Commercial Building Initiative: 10-29-10
- 13. Governor Announces First-In-Nation Statewide Green Building Standards Code: 1-12-10
- 14. CPUC decision on SCE's 500 MW Solar Photovoltaic program: 6-18-09
- 15. SDG&E's application for 52 MW DG Solar PV
- 16. CPUC decision adopting PG&E's 500 MW DG PV program: 4-22-10
- 17. Utilities: Taking a Dim View of Solar Energy: Newsweek: 8-24-09
- 18. USEPA Ocotillo- Coyote Wells Sole Source Aquifer Designated Area map: December 2001
- 19. SWRCB Federal Cross-cutting Environmental Regulations Evaluation Form
- 20. SNL Financial: SDG&E, SoCalGas set out on 5-year, \$10.6B CapEx Program: 3-26-10
- 21. Map Shows 50 new California Faults: Fox 5 San Diego: 4-28-10
- 22. Ground displacement photos of Laguna Salada Fault from 4-4-10 7.2 quake: Dr. FS Vidal 4-28-10
- 23. USGS Historic Earthquakes 1892 02 24 Magnitude 7.8: 1993
- 24. Ecosystem Services: Their Economic Value and Place in Land Use Planning: An incorrect link was provided in our 5-27-10 letter. Correct Link:

http://www.wildconnections.org/images/Ecosytem Services Economic Value Land Use Plann

ing- Wild Connections 2010.pdf

Many of these significant environmental resources on the Project site are irreplaceable. Once these resources are destroyed, they will be lost forever. In fact, the Project applicant submitted testimony and documentation to the California Energy Commission admitting that in the Applicant's opinion, this Project will pose significant environmental impacts that cannot be mitigated.

09-7

### IV. THE DEIS FAILED TO ADEQUATELY DESCRIBE THE AREA AFFECTED BY THE PROPOSED ACTION

An EIS must "succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration." The DEIS fails to adequately describe the affected environment because it omits any discussion of traditional cultural properties on and adjacent to the Project site, and fails to accurately characterize the Project's soil and water conditions in the regional watershed that includes the Salton Sea, the New River and the Salton Sea National Wildlife Refuge.

09-12

### VI. THE DEIS MUST DESCRIBE EFFECTIVE MEASURES TO MITIGATE EACH ADVERSE ENVIONMENTAL EFFECT

The DEIS must include a discussion of the means to mitigate adverse environmental impacts. <sup>117</sup> Mitigation measures must be discussed for all adverse impacts, even those that by themselves would not be considered significant. <sup>118</sup> All relevant, reasonable mitigation measures that could

09-42

alleviate the environmental effects of a proposed action must be identified, even if they are outside the lead or cooperating agencies' jurisdiction. 119

09-4

Thank you for the opportunity to comment on the Staff Assessment/Draft Environmental Impact Statement for the Imperial Valley Solar Project (formerly SES Solar 2).

010-1

Our comments follow:

May 26, 2010

My name is Aniti Nicklen, I am a resident of Imperial Valley, I am a mother of two kids, I don't have grand children yet, but I expect to have them one day, and I want them to enjoy the landscape and the open space that is being reduced more and more.

\_\_\_

I want to let you know that I am 100% for solar and renewable energy but done the smart way.

Sunrise Powerlink is a bad idea. I can't believe that 6,140 acres of federal land are about to be ruined forever because the consystem in the desert is completely different from other areas and it is very fragile. My 12 year old daughter has a trampoline in our yard, guess what happens when we leave it on the same spot for too long, the grass dies. This is what's going to happen with those solar dish suncatchers.

I think that distributed rooftop photovoltaics will do the job. You should also offer incentives to family and business that reduce energy consumption. I think that the government has to set the example because many public buildings are wasting energy

unnecessarily, for example, buildings are being built with no windows (e.g school, classrooms, and the building where we had the hearing last night) the lights have to be on the whole day, plus the heater/airconditioning because of the lack of insulation. You can enforce certain type of regulations to avoid this type of situation. By remodeling these buildings, installing rooftop photovoltaics, by putting more insulation, plenty of jobs will be

Why do we always have to sell to big businesses, why don't you motivate small business and more entrepreneurship, this way the capital will stay in our community, this money will circulate and generate more jobs. This big companies usually take the profit and never reinvest a single penny in our community.

As a mom and as a citizen, I am embarrassed to continue taking away more resources that belong to future generations, and on top of that we are worse than rodents because we are destroying the environment.

"LET NOT EDUCATION BE DOGMA THAT BRUTALIZES, KILLS CREATIVITY AND ENSLAYES" anita n.

"Do not follow the voice of fear and doubt." May God bless your heart and give you peace!

BLM should choose the No Action Alternative with a CDCA plan amendment disallowing industrial development of this important area.

Additionally, BLM and CEC should do more to promote rooftop solar and other forms of distributed energy, rather than enabling the destruction of our precious open landscapes.

I am writing today to share my thoughts and love for the California desert. Just outside of Plaster City, CA lies a beautiful stretch of Mojave desert that has been proposed as a sight for a large Solar project. This land is special, with a number of living animals and plants making it its home. I have lived on that land for weeks at a time, donating my mind, soul, and body to restoring, repairing, and loving it.

For the last few years a solar project has been proposed for this spot in the desert, and I am writing to tell you, or anyone who will listen that this is a mistaket Do not allow a sotar field to be installed here, or anywhere that is not on top of a roof that already exists. By covering the desert with soler penels all ainties and plant life will forever be altered, most likely depleting the precious habitat for the flat-table homed lizard, and many other species.

We can no longer pretend that our actions on the Earth do not have repercussions. I believe solar is the answer, but not as pavement in the desert. Solar panels should be installed on every house and business, not on the crust of Mother Earth.

Thank you for your time and consideration.

This project is inappropriate for this area. There are many disturbed abandoned farmlands that this project could go up on. The company chose to site it on relatively untouched BLM land because its' cheaper- because BLM does not charge enough for leasing, and is giving away our Public Land on the cheap. Alternative sitings that would not have ecological impacts to the desert should be explored.

D-393

P2-2

P7-8

P8-1

3. I call your attention to the 2003 Energy Action Plan and the resulting loading order that was referenced by one of the CEC officials during the public meeting on May 24<sup>th</sup>. In that meeting one of the CEC officials referred to the second priority (after energy conservation) for future energy needs as "renewable energy sources". In my public comments, I mentioned that the second priority is renewable energy sources AND DISTRIBUTED GENERATION. I believe that the omission of the distributed generation is an omission of an important goal, which is renewable energy in the metropolitan areas where the demand for energy is most needed. Using distributed generation eliminates the need for ill conceived projects like the aborted Green Path North project and the hotly contested proposed Sunrise Powerlink project.

P10-3

4. One of the CEC officials in summarizing the results of the public meeting on May 24<sup>th</sup> referred to the RETI as a source for getting more details as to why we needed these desert renewable projects such as IV. In his discussion, the official stated that ALL groups were represented in RETI and that we should follow closely their actions and meetings. I pointed out to the CEC official that RETI

P10-4

DOES NOT represent the opinions of the "people on the ground" here in the desert. I also indicated that the environmental groups represented were two national organizations (NRDC and Sierra Club) and their representatives Joanna Wald and Carl Zichella and their opinions are not those opinions of the people here in the desert. I went to a RETI meeting in Palm Desert last Fall/Winter, and we demanded further representation with people on the ground and we were ignored. There is no one on the RETI board other than developers and utilities from the area where all this destruction is planned to occur.

P10-4

5. One of the CEC officials stated that we needed renewables in the desert due to the mandates of 20 percent and 33 percent and that his opinion is that we can't do this with rooftop solar in cities alone. Well I say that you need to prove your point. I referenced the San Diego Smart Energy 2020 Plan <a href="https://www.etechinternational.org/new-pdfs/smartenergy/52008-SmE2020-2nd\_pdfand">https://www.etechinternational.org/new-pdfs/smartenergy/52008-SmE2020-2nd\_pdfand</a> to the official and he said he has read the plan and he is not convinced that we can do enough in basin generation of energy. This sounds like a problem that needs to be solved. I challenge the CEC to have an open debate with the author of the plan, Bill Powers, before you approve this project and other desert projects. It is not proper to ignore the above plan without vetting it properly. Projects like the proposed IV project which will desecrate our beloved desert should not be approved without discerning the facts and analyzing them.

P10-5

1. Please accept these comments on the SA/DEIS for the IV Solar Project Docket No. 08-AFC-5. Unfortunately, my computer just obliterated all evidence of about 15 pages of text so I will do the best I can in the remaining time. I will also incorporate by reference all comments and Exhibits submitted to the CEG for the Evidentiary Hearings on May 24, and 25, 2010 and the comments submitted to the US Army Corps of Engineers. I apologize for repetition, but I have been having computer difficulties and been unable to eatch what are probably many duplications, and simply run out of time to remedy what the computer decided to vanish.

The numbering of my exhibits will be continuing with the numbers for my testimony before the CEC as a witness for Intervenor Tom Budlong, beginning with Exhibit Number 515. Because of Iack of time, comments will go to both agencies and address issues which may be considered for both CEQA and NEPA and the BLM Plan Amendment Process as referenced in BLM

- 5. After Van Paten's testimony of May 25, 2010 re need to rush to get taxpayer monies, please, as an alternative to using taxpayer funds to go to the applicant, consider what could be accomplished if that 52 billion were to go to use known reliable human-scale options that would result in avoidance, reduction, or elimination of some of the anthropogenic emissions of greenhouse gases as a means of meeting the goals of the problems for which solutions are being sought. It seems more prudent to put the largest quantities of funds to making changes that will reduce emissions and reduce or eliminate generation of such emissions in the future. Please note that from the February SA/DEIR the pricetag has gone up from \$1.4 to \$2 billion.
- 6. Creative solutions and careful zoning and planning should come before widespread destruction of relatively undisturbed public lands financed by taxpayer funds. Again, when will we return to the 55 mph speed limit and require that public buildings and schools have windows that open so that forced air and air conditioning are not required for places with large concentrations of people? Please consider the wisdom of the Native American elders and the knowledge of your parents and grandparents as they lived far more lightly on the environment than those today and created far less adverse impacts on the environment.
- 7. Mandating the use of new or unproven technologies without first having experience with prototype operations of scale and duration to be assured of feliability seems extremely ill advised use of public funds, especially when there are tight budgets. This IV Solar/Solar 2 applicant and project seem to view the US Treasure as an endless pot of gold awaiting their grab, and with no assurances that this is a workable project on a scale of 30,000 units over almost 6.500 acres!
- 8. A country that can afford a space program and can afford to be engaged in two wars can certainly afford to spend the money to improve insulation and housing stock so that there are not health problems associated with summertime high temperatures or wintertime cold temperatures by means far more effective than simply increasing energy to avoid making significant changes that will have long term benefits that do not require ever increasing amounts of energy. Using funds NOW to improve the places where people live would most likely play a more significant role in meeting the emission standards than speculative technologies funded by taxpayers.
- 9. Anyone who has ever lived in rural parts of Africa in Botswana or Namibia knows first hand that the traditional African home construction with extremely thick walls (12-18" of "mud and wattle" style with 12-15" of bundled grass thatched roofs were very comfortable during the

P11-1

coldest parts of winter and hottest parts of the summer because the homes worked without the addition of external energy sources. But contrast those to the thin 4-6 inch thick concrete walls with corrugated metal roofs of the British, and one instantly sees the wisdom of centuries of traditional knowledge of what works. Water would freeze in basins in my British style home in winter, but those fortunate enough to live in traditional housing did not experience such swings in temperatures of the home. Early homes in the southern parts of the US in days before air conditioning looked to the proper placement of windows to take advantage of breezes to cool in the summer. How sad that in an age of technology we have lost the ability and desire to learn from the wisdom of those who came before us.

- 10. As decision-makers, you have the opportunity to make the decisions that will reinforce public statements when you say you will not short change the processes and that you will insist that serious solutions to problems are truly deserving of taxpayer funding, not only speculative projects that have a large component interest in "return of monies to the investors". What about the need to invest in a better quality of life for future generations by considering something other than massive destruction of public lands with their treasures cultural and biological resources so necessary for intact ecosystems in a changing world. Why not insist that all the investments will be for implementing technologies and solutions in the communities where lands had already been disturbed for human development in the form of commercial, industrial and agricultural lands in addition solving the problems of existing construction.
- 16. US Gypsum environmental review took almost 6 years to produce a DEIR/EIS and then another year and half to produce a final EIR/EIS, and two years after the release of the FEIS, BLM still has not issued its Record of Decision for a right of way for a simple water line adjacent to the road, for which the boundaries of IID were changed almost 30 years age! And that is a far less damaging project in terms of surface distrabances. It tool BLM probably 4-5 years of review before deciding to not approve the Plan of Operations for the Glamis Imperial Mine project. (See NAFTA Tribunal decision of 2008s.)
- 29. When it comes to the issue of power plant reliability, the staff seems quite accurate in asserting that:

Staff cannot determine whether the applicant's availability goal is achievable and cannot predict what the actual availability might be, given the demonstration status of this Stirling engine and limited data on large-scaled deployments of Stirling engines. (The availability factor of a power plant is the percentage of time it is available to generate power; both planned and unplanned outages subtract from this availability, Staff believes possible that the project may face challenges from considerable maintenance demands, reducing its availability, (ES-35)

30. Given the unproven nature of the proposed technology and lack of larger scale or longer duration demonstration of success, it seem more than ill-advised to use federal funding to finance a private investor company whose "renewable energy." activities would cause irreparable harm to the public lands and their resources, both for the IV Solar Project site and for the public lands that would be impacted by the activities whether the project succeeded or failed. Accordingly the wise decision in light of the very significant cultural resources and wildlife habitat would appear to be to support the No Action Alternative with Plan Amendment to ensure that no other solar projects submit AFCs in the future. This would be the resource protective and staff would not have to engage kin seemingly endless hours reviewing projects which should not have merited the expenditure of time and effort.

P11-4

P11-9

31. How curious it is to review the Staff summary of Socioeconomics and environmental Justice in the SA/EIS.) At the Evidentiary hearings the applicant spoke of a S2 billion project, but when one considers the S8-92 million for local operation annual payroll, property taxes of S0.84 million, 7-4 million for operations and maintenance, etc, it appears that relatively little money would stay in Imperial County.

P11-18

33. With reference to staff discussion of Noteworthy public benefits, (ES-47) there is inadequate information for comparisons to ascertain if the same benefits could be achieved by other means.

P11-20

35. The section on Noteworthy Public Benefits is absolutely unconvincing and appears to be a

↓P11-22

desperate attempt to say to find something positive to say about the project, without considering any meaningful alternative solutions and reducing demand. The alternatives suggested in this letter should be able to qualify for loan guarantees under Title XVII of the Energy Policy Act of 2005 (ENACT) given a strict interpretation of the text provided at p. A-3.

P11-22

- 36. "The ENACT established a Federal loan guarantee program for eligible energy projects that employ innovative technologies. Trile XVII of ENACT authorizes the Secretary of Energy to make loan guarantees for a variety of types of projects, including those that "avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases, and employ new or significantly improved technologies as compared to commercial technologies in service in the U.S. at the time the guarantee is issued." The two principal goals of the loan guarantee program are to encourage commercial use in the U.S. of new or significantly improved energy-related technologies and to achieve substantial environmental benefits. DOE can comply with the requirements under ENACT by selecting eligible projects that meet the goals of the Act." (A-3)
- I am appending a letter submitted to the US ACE for its comments and included a number of exhibits related to the question of new, and alternatives solutions. (Exhibit 572)

P11-26

#### NEPA No Action Alternatives

60. Discussion of the three different BLM No Action Alternatives (SA/DEIS B.2-18) is more than a little confusing without the specific text of any CDCA Plan Amendment related to interpretation of the definition for Multiple Use Class I.

- 61. I strongly recommend the No Action Alternative, and believe that it makes sense to deny any future consideration of industrial scale solar development at the proposed project site. However, if such a plan amendment would open the door to all Class L lands being available for industrial scale wind and solar in the future, it would be better to have no plan amendment, but what a waste of time energy and resources to have to go through the same process again!
- 62. A Plan Amendment that would prohibit consideration of any other solar projects at the site and denying the IV Solar Project would best serve the interests of public lands. But Please be extremely careful about the text and I urge that there be NO change in the definition of Multiple Use Class I.

#### Importance of place to the public, or feeling of sacred sites may be something universal

- 63. I have been participating in the Section 10c consultation process because I have had a long time concern about the issues of sacred lands, sacred agoraphy and had the extraordinary opportunity to get to know indigenous people living in North America and from all continents except Antaretic. I understand the puil of the land, of certain places that change forever how one related to the environment and world in which one finds oneself. For more than a decade I have been invited to participate in conferences where the vast majority of participants are indigenous people coming together to try to find solutions to problems that threaten traditional cultures, ways of life and traditional lands. Each gathering has been inspirational and I have learned so much more than 1 have been able to share.
- 64. I have been with Tibetan refugees on several occasions at the site of the proposed Glamis Imperial Mine project in eastern Imperial County and experienced their reluctance to leave, because for them they were in a place that took them back to similar places in Tibet. It is the land, the viewshed, the rocks and diversity of short vegetation that does not interfere with the views of the mountains that gave Tibetans peace in Imperial County. Something about the universality of the sacred and the understanding of sacred geography that pulled Tibetans to the place that has long been sacred to Native American peoples along the Colorado River. And, yes, My husband and I also spent many days there because it was an incredible and awe-inspiring viewshed where one could never get lost, a place to find peace and purpose in life, a place where land matters.
- 65. So, I was surprised when I left the 106 PA meeting last week and drove west on Interstate 8 through agricultural lands and out into the open desert, a trip I have made hundreds of times in

- recent decades. I have always loved the washes and topographic diversity between 1-8 and Old Hwy 80, the very lands proposed for the IV Solar project.
- 66. As I told Carrie Simmons in a phone message after returning home and also mentioned in public comment at the CEC hearing on Monday May 24, 2010, the first word that came to my mind after leaving Ag lands and getting into the open desert was "safe". Over and over again the word "safe" told me about that place, safe and peace. I had not realized just how much this very part of the desert had come to mean to me. For me the IV Solar project site, looking out across the desert, feeling the life associated with the washes all with the Coyote Mountains in the distance, there is a sudden overwhelming sense of suddenly feeling safe and at peace, the washes are almost magical, healthy with vegetation showing no signs of die-back as elsewhere in the western part of the County. In the 33 years I have lived here, this special part of the desert love, and away from the technologies and chose of a fast paced world that often makes no sense in terms of what is important. I was in tears before I got to Ocotillo because the thoughts of losing this open desert and healthy washes was a burt that caught me off guard, and I am in tears as I write this as Carrie Simmons requested that I share with others at BLM.
- 67. For those of us who are not city folk and live with the desert as our neighbor, sacred lands are a part of our lives. One does not have to be a Native American or have generations of cultural ties to the land to understand that the concept of sacred sites and viewsheds that encompass the sacred are a part of everyday life, even if we are not physically there every day. Last week I finally understood that for me the north side of I-8 with the lands proposed for IV Solar...that is land and a viewshed that has become part of who I am and what I value and I cannot imagine what losing that viewshed will mean for me. I understand Carmen Lucas and Preston Arrowweed, their passions and concerns, and how difficult it is to get others to understand something that cannot be easily described with written words.

68. The Imperial County desert is not a wasteland to be exploited or sacrificed so people a hundred miles away, who know nothing of the land or its resource values, can have ever increasing consumptive lifestyles. There are other solutions to energy issues that do not involve loss of significant oublic lands.

- 69. City people too often see the deserts as sacrifice areas necessary to support affluent urban lifestyles and higher levels of consumption. They can't recognize prehistoric evidence of the desert dwellers hundreds and thousands of years ago. Some seem to prefer Interstates, paved streets, vs. foot trails going from water source to water source with distant mountain peaks to guide the way. Some of us need to see and feel a wide horizon to have any hope for the future. The biological diversity in so much of the desert far surpasses that of the forests..that from my sister who is a bottanist for the National Forest Service doing plant surveys in NH and ME, but regularly visits here in the desert.
- 70. On the day we spent exploring part of the project site it was most amazing twhat we found. What a wonderful experience that was, with wildflowers and healthy washes beyond my wildest imagination. And how many hundreds of times have I driven past the site during the past 33 years. It has become part of my sacred geography. One doesn't have to be a Native American to become extremely attached to those open public lands with exciting washes and mountains on the horizon to understand the overwhelming sense of peace and safety that overcomes you as soon as you eliminate the view of agriculture and modern human activities from the horizon. "Safe" was the word I felt as soon as I reached the open desert by the proposed project site after leaving a day of 106 meetings last week. Traveling west, by the time I got to Octillo I was in tears at the thoughts that it might all be destroyed for an unneeded project. I had not realized

how much that area had come to mean to me each time I left Imperial Valley agricultural fields for the open desert as it has been left for us all to find peace. Yes, I understand why Native Americans have such a difficult time trying to explain why this area is so important. They speak for the future of all living things, and they are right to care.

P11-30

#### **Environmental Justice**

71. All this really points to is looking at areas with low levels of education, high unemployment and majority non-anglo populations as areas where damaging projects are acceptable to many in remote urban areas, projects that would be rejected near more affluent communities. This environmental justice issue was brought home to the CEC during public comment by a faculty member at the college. What is in it for residents of Imperial County, increased air pollution, likely increased asthma rates and an eyesore to remind them of their second class status every time they leave or return to the County, something to remind them that others have found the low income desert communities acceptable sacrifice areas. Siting a project such as Solar 2 adjacent to the Interstate is to be sure that the local people will not be able to ignore how others have chosen this place where they live to be a sacrifice area.

72. Yes, it is an environmental justice issue! If people really eared about the jobs issue, the money would go to distributed rooftop PV and insulating homes to make them use less electricity both winter and summer in the desert. \$2 Billion (that is for Solar 2 only, transmission line is extra) would go a lot further for improving the quality of life for people in Imperial County if NOT spent on an industrial scale solar project not needed by San Diego. Should I find some comfort that it is the electric rate-payers who get their electricity from SDG&E that will have to face the increased electric bills, rather than increasing rates for electricity in Imperial County. But what have the average electric users in San Diego done to descree what this will cost them? I don't understand why they are not getting very upset. And I don't understand why CEC and BLM are not evaluating serious alternatives to industrial scale remote generation.

73. The only winners would be the investors of the project applicant and SDG&E...and then only

maybe. This project is one of many slated for the destruction of Imperial County deserts. Individually ugly, but cumulatively an impending disaster for the species that have adapted to extremely harsh conditions and for the people who call this area home.

#### Noise

75. I was shocked to see and hear the incredible noise of the SunCatchers at the Maricopa site. It would be enough to drive anyone crazy unless the person is already deaf, but animals cannot obtain hearing protection. Until Monday I had not realized how much noise would be generated!

#### De Anza Trail

76. From what I am learning I believe that there is serious concern about proposals for moving the De Anza trail, which of course was originally an Native American trail going from water source to water source. Hundreds of years ago, and even when Europeans first arrived, there were still

small surface bodies of water. Many were destroyed when the canal broke banks and the New River was formed in 1905, That flood destroyed many historic lakes that are memorialized only in name now. Of course, the original inhabitants knew where the water sources were.

77. San Diego residents who are members of environmental organizations including the Sierra Club and others know the IV Solar project is not needed based on the research and writings of Bill Powers. P11-33

#### Alternatives and what the \$2 billion could do to solve energy issues

- 78. Based on all I know, I am more convinced than ever that the preferred Alternative that makes the most sense is the No Project, BLM Plan Amendment to deny the project and prohibit solar projects on the project site. That recommendation was made in public comments and in my comments as an individual to the Army Corps of Engineers. Y esterday, the project applicant explained that this is a \$2 billion project and that the deadlines are driven by the Applicant's need to get federal funding.
- 79. In my mind there are serious questions about whether there can be any justification for using taxpayers' money to destroy fragile desert public lands with important cultural resource/sacred sites values when there are so many viable alternatives that combined would reduce electrical demands, improve quality of life, and reduce greenhouse gases. Does anyone know how much distributed PV and home insulation to reduce demand could be done with the \$2 billion that the industrial scale solar would require for financial viability? \$2 billion for alternatives would mean lots more jobs closer to where people live.
- 103. There is ongoing litigation related to the Court requirement for the preparation of the Draft and Final EIRFIS for the US Gypsum project and said that litigation is ongoing. 1 do not know if the mitigation and monitoring measures required when the County certified the EIR have been implemented since 2008. I was told by USGS staff that they are doing no additional monitoring of any new wells. So that makes me think that not all mitigation has been implemented or enforced.
- 104. BLM has NOT made its Record of Decision to approve the Right of Way for the USG waterline to the WestSide Main canal to use Colorado River water for at least a part of the factory use and this ultimately has a significant adverse impact on downgradient water levels
  - US Gypsum is currently getting gravity flow groundwater through w water pipeline from Ocotillo.
  - USG is not using the up to 1000 AF/Y of Colorado River water authorized by IID because BLM has not issued its Record of Decision for the 2008 USG FEIS.
  - c. BLM cannot issue a ROD until Fish and Wildlife Service completes its Biological Opinion because other projects related to energy are forcing the Service to rush certain reviews and let others wait.

P11-34

P11-36

106. My conclusions about the proposed Alternative water source are that

- First and most important, the monitoring data provided is not current even though it is
  possible to get current USGS data online.
- b. In the absence of monitoring data it is not possible to reach the conclusion that impacts of well interference at the Boyer well location will not be significant.
- c. Accordingly it would be inappropriate to conclude that the proposed well with its lack of pumping withdrawal information would not have an adverse impact if it began pumping and exporting 40 AF/v.

EH re CEC/BLM responses to Applicants Alternative Water Supply from well 16S/9E-36G4 and comments on SA/DEUS for Imperial Valley Solar Project (formerly Solar 2) Docket No. 08-AFC-5

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Ocotillo/Nomirage Community Area Plan (ONCAP) a part of the Land Use Element of the Imperial County General Plan 1994 with groundwater basin map

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Sierra Club v. County of Imperial, US Gypsum, Real Parties in Interest, Case No. 97911 Superior Court, County of Imperial. Reporter's Appeal Transcript 5-17-99 at p. 28.)

Sierra Club v. County of Imperial, United States Gypsum Company, Real Party in Interest, Court of Appeal Case D034281 Decision 10/26/00, Court of Appeal file recalled from storage and reviewed in January 2008

Skrivan, James. USGS 1977 "Digital - Model Evaluation of the Ground-Water Resources in the Ocotillo-Coyote Wells Basin, Imperial County, California"

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US EPA 1996 designated Ocotillo-Coyote Wells Groundwater Basin as a "Sole Source Aquifer" 61 FR 47752, Sept 10, 1996)

USGS 1977. Computer printout of well ownership and drilling dates and depths.

USGS groundwater monitoring information data for the Ocotillo-Coyote Wells Groundwater Basin at the following source <a href="http://nvis.wwicerdate.usgs.gev/ce/nwis/ywr\_for-individual\_well\_sites in the USGS lmperial\_County\_groundwater monitoring program.">http://nvis.wwicerdate.usgs.gev/ce/nwis/ywrindwidual\_well\_sites in the USGS lmperial\_County\_groundwater monitoring program.</a> The water level data is a wailable from USGS both as a graph of monitored or as a Table of data for each individual monitored well. Water quality\_data for the individual\_wells monitored can be obtained at <a href="https://nwis.gwiterdata.usgs.gev/ce/nwis/gwdeta">https://nwis.gwiterdata.usgs.gev/ce/nwis/gwdeta</a>

USGS well location maps & data for Imperial County, links to individual wells monitored for water levels http://groundwaterowatch.asgs.gocountymaps/CA\_025.html

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#### Exhibits for Solar 2 groundwater issues

- 515 US EPA 1996 designated Ocotillo-Coyote Wells Groundwater Basin as a "Sole Source Aquifer" 61 FR 47752, Sept 10, 1996)
- 516 "EH Table 10 Water well information, water quality, and groundwater elevations Ocotillo/Coyote

Wells Groundwater Basin, a Sole Source Aquifer, Imperial County C.A." Updated March 2010 from Sierra Club comments on USG FEIR/EIS 2008 and included in CWSP Scoping comments found at 28appa-nop-initial-study-a at pp 7-17 (USG FIR/EIS Appendix B-1 USGS Hydrologic Data, USGS NWIS water level and quality data & Bookman-Edmonston 3/96 (BE96), BE 1/2004 (BE04). 11pages.

- 517 Ocotillo/Nomirage Community Area Plan (ONCAP) a part of the Land Use Element of the Imperial County General Plan 1994 with groundwater basin map
- 518 US EPA 2010-04-11 letter re Final EIS for US Gypsum project
- 519 USGS 2008-12-24 letter to Cong. Filner re Final EIS for US Gypsum Project
- 520 US EPA 2009-02-25 comments re NOI for Covote Wells Specific Plan Area
- 521 USG FEIR/S 4.0 Collective Responses Table 4.0-1 Water quality info from USGS
- 522 USG FEIR/S 4.0 Collective Responses Fig. 4 Wells with Water Quality Data
- 522 CSG PERGS 4.0 Confective Responses Fig. 4 Wells with water Quanty Data
- 523 USG FEIR/S 4.0 Collective Responses Fig 7. Wells with Recent Water Level data
- 524 BE 2004 Table 4-2 Historic Groundwater Pumping in 2006 USG DEIR/S
- 525 Ocotillo Express Wind Draft Plan of Development 2009
- 526 SES Applicant's Submittal of Opening Testimony re Van Patten re well 16S/9E-36G4
- 527 Terms for Well 16S/9E-436G4
- 528 Moore in SES Applicant's submittal of Opening Testimony re well 16S/9E-36G4
- 529 Ocotillo Express Wind Facility 4 pgs
- 530 USG FEIR/S Mitigation & Monitoring re Hydrology ES 9-11 submitted as an exhibit for the CWSP DEIR comments 20210
- 531 USG DEIR/S Mitigation & Monitoring re Hydrology See Applicant's Appendix C for hydrology and USG DEIR/S Impacts and Mitigation in Summary Table at pp S-7 through S-11
- 532 Powers, Bill. 2007 San Diego Smart Energy 2020 158 pgs, PP 69-74 includes conclusions and
  - http://www.etechinternational.org/new\_pdfs/smartenergy/52008\_SmE2020\_2nd.pdf
- 533 Berkeley Law. 2009." In Our Backyard: How to increase renewable energy production on buildings and other local spaces"
- 534 URS/BLM color brochure "Imperial Valley Solar Project Frequently asked Questions May 2010"
- 535 Tessera Solar, SES "Imperial Valley Project Fact Sheet (Formerly SES Solar Two)" undated color brochure
- 536 "Impacts of Avoidance or partial avoidance of Drainage Areas I, K, C, E, and G" identified as "Preliminary Layout" by RMT in BLM documents provided at workshop on May 4, 2010, possibly dated 4/12/2010.
- 537 Skrivan, James. USGS 1977 "Digital Model Evaluation of the Ground-Water Resources in the Ocotillo-Coyote Wells Basin, Imperial County, California"
- 538 Sierra Club v. County of Imperial, United States Gypsum Company, Real Party in Interest, Court of Appeal Case D034281 Decision 10/26/00, Court of Appeal file recalled from storage and reviewed in January 2008

- 539 US EPS re 2006 USG DEIS
- 540 USGS re 2006 USG DEIS
- 541 Powers 2010-05-13 email 4 pgs "best comparative solar costs info I have" & FW other docs
- 542 San Diego solar panels cost less with 1 BOG
- 543 16-apr-10 Renewable Energy World US Solar sees 38% growth in PV capacity in 2009
- 544 7-apr-10 RETI Phase 2B Draft Report pp 4-6 to 4-8 Thin film PV lower cost than solar thermal
- 545 Mar 2010 SNL "SoCalEd orders 200 MW of solar panels, plans solicitation for 250 MW more"
- 546 Powers 2010-05-13 email 1Q 2010 CS1 capital cost numbers
- 547 01-may-10 CPUC SunCentric Study in pictures through March 2010 costs trends (52 pages)
- 548 Huntley, D. 1993. Letter re changes in chloride concentration in water quality from a well in Ocotillo-Coyote Wells basin
- 549 Huntley, David 1979. Magnitude and potential effects of declining water elevations in the Ocotillo-Coyote Wells groundwater basin.
- 550 RMT 2010 Impacts of avoidance of drainages Fig. From BLM handout for May 4, 2010 workshop.
- 551 Harmon 2010 values for static water level in feet above mean sea level including most recent USGS data (compiled from Exhibit 516 EH Table 10, a compilation of USGS monitoring data.
- 552 Tisdale 2006 comments on the USG DEIR includes information on the IID source of supply for industrial use at Plaster City/USG factory
- 553 USGS 1977 computer printout of well ownership and drilling dates for Ocotillo-Coyote Wells Groundwater Basin
- 554 Zipp R. 1980. Ocotillo-Coyote Wells Groundwater quality-quality study, Imperial County
- 555 Table Westwind Water Sales History & water levels well 16S/9E-36G4 vs USG 16S/9E-36H1
- 556 Hamilton 16S/9E-34B1 well location and water level graph from USGS website
- 557 Hamilton 16S/9E-34B1 well water level table '98-09 from USGS website
- 558 Discrepancies in groundwater pumping (AF/Y) by USG wells in Ocotillo-Nomirage area as submitted by Bookman-Edmonston's Richard Rhone in January and September 2003 (Table 16-17 of Sierra Club comments on 2008 USG FEIR/S)
- 559 USG Annual Pumping and water levels in 3 USG wells in Octotillo area (Table 14 of Sierra Club comments on 2008 USG FEIR/S) source of orriginal information is in Exhibits 560 and 561.
- 560 USG Annual Reports 1993-2002 (originally Sierra Club Exhibit 242 for 2008 USG FEIR/S)
- 561 Rhone 2003 email re USG Annual pumpage for three wells combined (originally Sierra Club Exhibit 236 for 2008 USG FEIR/S)
- 562 Map depicting location of private land and water wells in relation to local geology
- 563 Bookman-Edmonston 2004 text and tables related to Westwind Water Company water use from well 16S/9E-26G4 at Painted Gorge and West Texas
- 564 Bookman-Edmonston 1996 text and tables related to Westwind Water Company water use from well 16S/9F-26G4 at Painted Gorge and West Texas. Figures depicting cones of depression

centered at wells pumping more than 10 AF/Y

- 565 ICPDS Minnick 2004-09-07 response letter to Brammer re property and Well 16S/9E-36G4.
- 566 Harmon Testimony dated May 10, 2010 for Intervenor Budlong re Alternative Water Supply from well 16S/9E-36G4. Overlying the Ocotillo-Coyote Wells Sole Source Aquifer.
- 567 Harmon Testimony dated May 10, 2010 for Intervenor Budlong re Alternative Water Supply from well 16S/9E-36G4. Overlying the Ocotillo-Coyote Wells Sole Source Aquifer.
- 568 Rush is on for desert solar project. San Diego Union Tribune May 26, 2010. Account of CEC Evidentiary Hearing and public comments.
- 569 Supervisor Fuentes to BOS re EPA ltr and air quality in Imperial County 2010-05-26
- 570 US EPA to Nichols 2010-05-24 re Imperial County air regs
- 572 EH comments to the US ACE re IV Solar Project, including discussion of need.

As a private citizen and a consulting party on the National Historic Preservation Act 106 process, I would like to respectfully submit the comments below on the draft ElS (DEIS) for the Imperial Valley Solar Project (listed as docket CEC #08-APC-5 and formerly known as the SES Solar Two Project), First, I would like to mention that that I am a 8th generation Californian and a descendent of members of the Juan Bautista de Anza expedition of 1775-1776 (Anza expedition), I have written the on-line and printed version of the Juan Bautista de Anza National Historic Trail (JUBA NHT) guide for the National Park Service, NPS. In addition, I have 20 years of R&D experience in the field of solar energy and solar materials and have served as an editor for an international journal in that field during that time. I am also a peer reviewer for

government-funded photovoltaic solar R&D in the U.S. and abroad, and for venture capitalists investing in renewable energy. More about all of these activities can be learned at my web site. This said, I whis to express my concurrence and support for comments submitted by the George J. Turnbull, Acting Regional Director, Pacific West Region, NPS L7615 (PWR-UBA), received in the docket May 4, 2010. I offer my own comments below on the DEIS.

The sites related to the JUBA NHT include Anza expedition campsites #47 (Yuha Welt, coordinates UTM: 605238 g. 3620362 N; Lat/Long: 32 degrees 42' 57.98" N, 115 degrees 52' 37.90" W) and #48 (within 500 meters east & west of Lat/Long: 32 degrees 48' 58.68" N, 115 degrees 51' 05.15" W along the arroyo north of Plaster City). These are south and north of the proposed project site, respectively. Campsites #47 and #48 are separated by an open and foreboding desert landscape that is unique in both its scale and importance in the history of the colonization of California and the founding of San Francisco. San José and Los Angeles. Our historical, cultural and archaeological resources should be protected and preserved so that future generations of American citizens can enjoy recreational activities and first-hand experiences that could enhance our appreciation of our collective history and heritage. Some effort should therefore be made in the final EIS to describe whether similar projects on other U.S. National Historic Trails (e.g. the Lewis and Clark trail) set a precedent for construction on such historical, cultural and archaeological resources.

P12-1

D10.1

P12-2

Another aspect relates to the land itself. The proposed site of this solar project is in close proximity to the Anza campsite #47 at Yuha Wells which is an oasis and sensitive environmental, archeological and cultural site important for the history of all Americans. The EIS suggests that there could be significant visual and auditory impacts at this historic Anza campsite and at the surrounding recreational and cultural areas. There is a strong possibility that the project will disturb the thin layer of compacted soil & rock that prevents the dust underneath from blowing in the strong winds at the site of the proposed solar project. This could result in the loss of the topology and habitat (e.g., at arroyos, washes and historic paths) at or near the project site such that future users of the land might not be able to experience the landscape as it is now or was at time of the Anza expedition. Future uses of the land would then be limited. Soil, dust and erosion studies suggest that the project site might not easily be restored later to allow the meaningful recreational and cultural use that is possible there today. Although the DEIS does discuss (on pages C. 2-50 and -51) the reclamation of the site once the plant closes and it outlines a condition of certification specific to the development of a more detailed plan decommissioning plan, this text and the a closure plan submitted in 2008 does not go far enough to protect the future uses of the land. A strong recommendation to address this deficiency would be to more fully detail these dust and soil deposition aspects and to mitigate damages by monitoring (at sensitive areas within and outside of the project) dust erosion and settling (deposition) rates both prior to and during the lifetime of the project.

P12-6

Lastly, I wish to point out that the Power Plant Efficiency section in the DEIS does not adequately or completely report the performance of the proposed plant compared to baseline or alternative generation technologies. One should point out that the Imperial Valley Solar technology is still unproven on the 100s of MW scales represented by the proposed project. It may have a greater solar conversion efficiency than solar photovoltaic (PV) technologies for a single unit or module, but this may not be the case for the overall efficiency for the complete array of solar collectors. To illustrate this, we can begin with the CEC website which describes that Capacity is the amount of electric power for which a generating unit, generating station, or other electrical apparatus is rated either by the user or manufacturer. Installed or Nameplate Capacity is the total manufacturer-rated capacities of equipment such as generators and other system components. When staff reports on page D.3-5 of the EIS that the "Project would produce power at the rate of 750 MW net...", the installed capacity is confused with dependable and peak capacity. This should be clarified in the final DEIS by using additional text and terms and simple calculations such as those below. The CEC website defines a Capacity Factor as a percentage that tells how much of a power plant's capacity is used over time. For a solar plant, it is defined by:

P12-7

Capacity Factor =

Annual kWh generated for each kW ac of peak capacity (in kWh per kWp))/8760 hours per year

As disclosed in the proposed project's application (on the CEC web site), the total annual capacity factor for the plant is anticipated to be 25 percent. We can therefore translate the nameplate power rating to an expected annual energy production from:

750 MWp x 0.25 x 8760 = 1,642,500 MWh/year.

This compares favorably with the value cited on page D.3-5 of the DEIS, and its associated land use efficiency value of 249 MWh/acre-year. The applicant's peak power rating is therefore consistent with their anticipated annual energy production and this should be reported in the final EIS. This should be clearly presented along with the calculations, details and assumptions for correcting this value using the expected hydrogen use rate. Within the final EIS, however, one must then compare this to 312.5 MWh/acre-year with a 34% capacity factor for a large array of SunPower T20 tracker and 520 MWh/acre-year for a 26% capacity factor fixed-tilt PV installation. While these values are verified for PV, they are not for the applicant's solar thermal technology (e.g. the SunCatcher). Comparison values such as these should be reported in the Efficiency Table 1 on pg. D.3-6 of the EIS and more text should be associated with the table to describe that the Beacon Solar Energy Project is an established solar trough technology, the Ivanpah Solar plant is a solar tower technology and one should include the Calico Solar Project is a Tessera Solar 850 MW Stirling engine project. If the cultural, visual, soil and environmental conditions of the land managed by the BLM are to be irrevocably changed at the site, a full disclosure of the technical merits of several Concentrating Solar Power (CSP) and Photovoltaic (PV) alternatives at the site should be described in the EIS, together with at least a qualitative comparative analysis of mitigation that would be involved in these solar technologies.

If you have any questions on what I have written herein, or if I can be of assistance to you on matters relating to solar energy, please do not hesitate to contact me. Thank you for your attention to this matter.

P12-8

P12-7

Response: Noted. No response necessary.

## D.5 Individual Responses to the Comment Letters/Emails

This section provides individual responses to individual comments not addressed by the common responses provided in Section D.4, Common Responses. Each comment is uniquely coded to the commenting party and the individual comment within that comment letter.

The following comment letters included comments that required individual responses which are provided in this section:

- F1 United States Department of the Interior National Park Service (May 4, 2010)
- F2 United States Environmental Protection Agency (June 14, 2010)
- NA1 Quechan Indian Tribe (May 17, 2010)
- S1 California Department of Transportation (May 27, 2010)
- O1 Public Employees for Environmental Responsibility (PEER)
- O2 Center for Biological Diversity (CBD)
- O4 Natural Resource Defense Council and The Wilderness Society
- O6 Backcountry Against Dumps (June 15, 2010)
- O8 Backcountry Against Dumps (May 27, 2010)
- O9 California Unions for Reliable Energy
- O10 California Native Plant Society
- O11 BLM California Desert District Advisory Council (email April 1, 2010)
- P2 Anita Nicklen (email May 28, 2010)
- P7 Brendan Hughes (email May 17, 2010)
- P10 Denis Trafecanty (no date)
- P11 Edie Harmon (email May 26, 2010)

The following comment letters did not include any comments that required individual responses so they are not discussed in this section:

- NA2 Kwaaymii, Laguna Band of Indians (May 16, 2010)
- S2 State of California Department of Parks and Recreation (May 28, 2010)
- L1 City of El Centro (May 13, 2010)
- L2 Imperial County (May 27, 2010)
- O3 Defenders of Wildlife
- O5 Anza Trail Coalition of Arizona
- O7 Basin and Range Watch
- U1 San Diego Gas & Electric (May 14, 2010)
- P1 Edie Harmon and Donna Tisdale (email March 2, 2010)
- P3 Kim Bauer (email April 17, 2010)
- P4 Glenn Kirby (email April 24, 2010)
- P5 Gregory Gandrud (email May 5, 2010)
- P6 Cody Hanford (email May 13, 2010)
- P8 Jamie Shores (email May 26, 2010)
- P9 Patrick Donnelly (email May 26, 2010)
- P12 Greg P. Smestad, Ph.D. (May 21, 2010)

# D.5.1 F1 – Responses to Comments from the United States Department of the Interior National Park Service (May 4, 2010)

NPS is also very concerned about the cumulative effects that this and other planned renewable energy projects will have on the California desert, and specifically, other National Park units. The combined effect of these projects, proposed on vast tracts of relatively undisturbed open land, will result in fundamental changes in how the desert is experienced by the public. The cumulative effects of these projects will also result in substantial impacts to a wide range of environmental resources in the California desert.

F1-2

F1-2 The National Park Service's concern for the cumulative impact of planned renewable energy projects in the California desert is acknowledged. Refer to Section D.4.4 earlier in this report for discussion regarding cumulative impacts.

## D.5.2 F2 – Responses to Comments from the United States Environmental Protection Agency (June 14, 2010)

The DEIS also discusses two private inholdings, 640 acres and 160 acres, within the Project site. Through conversations with the Applicant and from the March 25<sup>th</sup>, 2010 transcript of the hearing before the California Energy Resources Conservation and Development Commission, it is our understanding that these inholdings are reasonably foresceable parcels that are being pursued for purchase and incorporated into the site design. The FEIS should fully discuss the potential development of these inholdings and the potential additional SunCatchers that could be installed on each inholding. Placement of SunCatchers on these parcels, outside of drainages, could help alleviate the pressure to place SunCatchers within drainages on the currently accessible portion of the Project site. These foresceable acquisitions could be used to balance additional energy output with the protection of high value drainages and avoidance of Waters throughout the site. The FEIS should also discuss the feasibility of using these reasonably foresceable parcels as a location for components of the Main Services Complex.

F2-17

F2-17 The referenced parcels are privately owned and, at this time, the owners of those parcels have not indicated any interest to the BLM regarding using those parcels for renewable energy uses. As a result, because those parcels are not under lands managed by the BLM, any renewable energy project on those lands would be outside the jurisdiction of the BLM. In addition, the applicant has no rights to those lands and is not considering pursuing the use of those parcels for its project. As a result, these parcels were not been included in any of the Build Alternatives considered in the SA/DEIS and the FEIS.

The FEIS should also incorporate alternatives to avoid the 2.33 acres of Waters that are estimated to be impacted by the proposed water line. The DEIS describes options to lay the line underground as well as span on existing bridge crossings (at pg. C.2-12); however, the DEIS indicates impacts remain undetermined (at pg. C.2-30).

F2-19

F2-19 This comment raised concerns about the unknown quantity of impacts to Waters of the United States (waters of the U.S.) related to the Seeley Wastewater Treatment Plant (SWWTP) reclaimed water pipeline part of the project site as well as the lack of analysis of the potential interim water supply from the Dan Boyer Well. The applicant has quantified the waters of the U.S. that occur along the proposed pipeline alignment. The applicant plans to either span Waters of the U.S., or to use horizontal drilling to install the reclaimed water pipeline below waters of the U.S. spanning of waters of the U.S. and subsurface installation of facilities below waters of the U.S. are not regulated pursuant to the Federal Clean Water Act (CWA). The reclaimed water pipeline in the IVS project will not result in any fill or discharge to waters of the U.S.

Refer to Chapter 4, Environmental Consequences, in the Final Environmental Impact Statement (FEIS) for analysis of proposed short-term use of water from the Dan Boyer Well.

#### Ephemeral Washes and Drainage

Natural washes perform a diversity of hydrologic and biogeochemical functions that directly affect the integrity and functional condition of higher-order waters downstream. Healthy ephemeral waters with characteristic plant communities control rates of sediment deposition and dissipate the energy associated with flood flows. Ephemeral washes also provide habitat for breeding, shelter, foraging, and movement of wildlife. Many plant populations are dependent on these aquatic ecosystems and adapted to their unique conditions. The potential damage that could result from disturbance of flat-bottomed washes includes alterations to the hydrological functions that natural channels provide in arid ecosystems: adequate capacity for flood control, energy dissipation, and sediment movement, as well as impacts to valuable habitat for desert species.

The Project site provides forage, cover, roosting and nesting habitat for a variety of bird species. These waters also support the flat-tailed horned lizard (*Phrynosoma mcallii*) a species currently proposed for federal listing under the Endangered Species Act. In addition, Peninsula bighorn sheep (*Ovus Canadensis nelsoni*) which are federally-listed as endangered, were observed on the project site (at pg. C.2-24).

The FEIS should commit to the use of natural washes, in their present location and natural form and with adequate natural buffers, for flood control to the maximum extent practicable. Because placement of SunCatchers could result in erosion, migration of channels and local scour in excess of 5 feet in many cases (at pg. C.7-33), SunCatchers should not be placed in washes, to minimize direct and indirect impacts to the washes. The potential damage that could result from disturbance of flat-bottomed washes includes alterations to the hydrological functions that natural channels provide in arid ecosystems: adequate capacity for flood control, energy dissipation, and sediment movement, as well as impacts to valuable habitat for desert species. The FEIS should demonstrate that downstream flows will not be disrupted due to proposed changes to any natural washes nor the excavation of large amounts of sediment.

Further, additional evaluation and comparison of the impacts of spanning versus various at-grade crossings, such as Arizona crossings or low flow culverts, should be provided in the FEIS (at pg. C.7-13).

#### Recommendations:

- To minimize direct and indirect impacts, such as erosion, migration of channels, and local scour, do not place SunCatchers in washes.
- Commit to the use of natural washes, in their present location and natural form and including adequate natural buffers, for flood control to the maximum extent practicable.
- Demonstrate that downstream flows will not be disrupted due to proposed changes to any natural washes or the excavation of large amounts of sediment.
- Minimize the number of road crossings over washes in order to minimize erosion, migration of channels, and scour. Road crossings should be designed to provide adequate flow through during large storm events.
- Locate facilities outside of waters. Estimate acreages and number of species
  protected as a result of alternative design configurations.

F2-21

F2-21

F2-21 These comments raised concerns about the impacts to ephemeral washes and potential effects of impacts on ephemeral washes to Federally threatened or endangered species as well as the biodiversity and ecosystem stability the washes provide. The United States Army Corps of Engineers (Corps) has prepared an alternatives analysis pursuant to Federal Clean Water Act Section 404(b)(1) guidelines and the Agency Preferred Alternative (the IVS project with modifications) includes avoidance of impacts in the primary Waters of the U.S. washes. The reduction of impacts to washes under the Agency Preferred Alternative will result in reduced effects to biodiversity and ecosystem stability. There are no known Federally listed threatened or endangered species anticipated to be adversely affected by the IVS project.

EPA is also concerned about the indirect impacts to the Salton Sea. As mentioned above, the ophemeral waters traversing the Project site flow to the Westside Main Canal and Coyote Wash, tributaries to the New River, which drains to the Salton Sea. The DEIIS fails to assess the indirect impacts to the Salton Sea from the proposed Project. Indirect effects could include, but are not limited to: 1) changes in hydrology and sediment transport into the New River and Salton Sea; 2) increases in volume and velocity of polluted stormwater from impervious surfaces on the Project site; 3) decrease in water quality from the impairment of ecosystem services such as water filtration, groundwater recharge, and attenuation of floods; 4) disruption of hydrological and ecological connectivity from upstream of the Project to the Salton Sea; and 5) decreases in biodiversity and ecosystem stability. Ensuring maximum avoidance of Waters and, thereby, reducing potential discharges into waters should reduce the indirect effects to the New River and Salton Sea.

F2-22

#### Recommendation:

- Maximize avoidance of Waters to reduce potential discharges into waters, as
  described above, to reduce indirect effects to New River and Salton Sea, which are
  waters of the United States.
- F2-22 Refer to response to comment F2-21, above.

#### Water Supply and Groundwater Resources

The DEIS proposes to supply water for the Project via a new 12-mile water line from the Seeley Wastewater Treatment Plant (SWWTP). The DEIS indicates that a Mitigated Negative Declaration (MND) had been prepared for the necessary improvements to the SWWTP to increase its capacity (at pg. C.7-28). The recent lack of adoption of the MND by the County Water District Board of Directors, as described on page 1-1 of the May 10<sup>th</sup> Supplement to the Imperial Valley Solar Application for Certification (Supplement), has raised concerns as to the viability of the SWWTP as a water source for the Project. The FEIS should include an update on the recent decision and a full evaluation of the environmental impacts from the proposed SWWTP upgrades if it is still considered to be a viable water source for the proposed Project.

The DEIS indicates there is currently no backup water supply for the Project (at pg. C.7-40). The DEIS also indicates no groundwater would be used by the Project and, therefore, the effect on groundwater infiltration would be negligible (at pg. C.7-3). On May 10°, the Supplement was submitted to BLM and CEC which includes changes to the Project description and new analyses of project design modifications, and proposes a sole source aquifer as a alternative water supply for the Project. In light of the fundamental changes to the Project, the Supplement should be fully integrated into the FEIS and the FEIS should adequately respond to stakeholder comments.

#### Recommendations:

- Include an update on the proposed upgrades to the SWWTP and include a full evaluation of the environmental impacts from the proposed SWWTP.
- · Fully integrate the recent Supplement into the FEIS.

F2-25 Refer to Section D.4.2 for responses related to the project alternatives and to response to comment F2-24, above.

F2-25

#### Newly Proposed Alternative Water Supply

The Supplement indicates the Project will rely on up to 50 acre-feet per year (afy) of withdrawals from an Alternative Water Supply (AWS) within the Ocotillo-Coyote Wells Groundwater Basin (OCWGB), a federally designated sole source aquifer, until water is made available from the upgraded SWWTF. The Supplement concludes the withdrawals from the AWS will have no significant impact on water levels in the area nor exacerbate overdraft of the OCWGB. It is our understanding from the Applicant that the AWS will result in no net increase in pumping. If this is so, this should be disclosed and adequately supported in the FEIS.

Information in the Supplement raises questions regarding whether adequate afy at the AWS is actually available. The AWS well is currently capped at a production rate of 40 afy, but the Project will require up to 50 afy. The Supplement does not provide information on how much of the 40 afy is already committed to other users. The most recent data provided in Appendix B in the URS Groundwater Evaluation Report (in the Supplement) indicate 42.1 afy was withdrawn from the AWS in 2004. This is the last year of withdrawal data provided in the Supplement. The Supplement appears to assume that Imperial County will allow additional withdrawals above the 40 afy, but there is no acknowledgement provided from the County. In fact, the opposite may be true. For example, the recently released draft Environmental Impact Report (DEIR) for the Coyote Wells (CW) project (aka, Wind Zero project) is proposed within the OCWGB and near the Boyer Well. The CW project intends to use up to 67 afy. The CW DEIR acknowledges the OCWGB is in an overdraft condition. It includes numerous groundwater mitigation measures not included in the Supplement. (See ftp://ftp.co.imperial.ca.us/icpds/eir/coyote-wells/19hydrology-water-quality.pdf.) It is not clear whether URS considered in its analysis the planned withdrawals by the CW project or the mitigation measures proposed for the CW project.

There are also questions concerning how long the AWS will be needed. The "Will Serve Letter" in Appendix A indicates the AWS will be required for six-to-eleven months, but the Supplement does not commit to a time frame for needing the water. Unanticipated delays in the upgrade of the SWWTF could occur.

Finally, the Supplement does not indicate whether the AWS withdrawals would impact nearby residential/private wells.

#### Recommendations:

- Confirm the AWS will result in no net increase in pumping from the OCWGB.
- Address the discrepancy between the current 40 afy cap on the AWS and the increased 50 afy demand, and provide documentation that the County supports additional withdrawals from the AWS.

F2-26

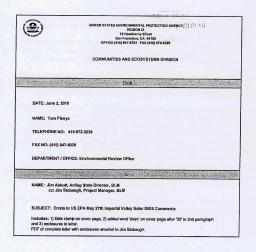
- Because the OCWGB may already be in an overdraft condition, the FEIS should discuss the level of impact the AWS would have on the overdraft conditions in the OCWGB.
- Discuss the applicability of the mitigation measures included in the CW DEIR and whether the CW project water demand was considered in the Supplement's analysis.
- Address whether the AWS withdrawals would impact nearby residential/private wells
- In light of the recommendations above, the FEIS should confirm the availability of a
  water supply for construction and operations of the Project and fully evaluate the
  environmental impacts associated with the ultimately proposed supply of water.

The FEIS should also further describe groundwater availability for this Project in light of other projects within the region, as well as the uncertainty regarding potential cumulative impacts on groundwater resources. Given the potential for adverse impacts from pumping groundwater, it is important that all monitoring and mitigation information be provided to the public and decision makers. The proposed Project would permanently eliminate thousands of acres of wildlife habitat. In the arid Mojave Desert, habitat and the springs are critically important for several special status species that rely on water sources and wetland vegetation communities. Our recommendations are further discussed in this letter's 'Cumulative Impacts' section.

F2-26

F2-26 Refer to Chapter 2, Alternatives Including the Proposed Action, in the FEIS for a discussion regarding water sources for the project.

F2-41



F2-41 The Environmental Protection Agency (EPA) submitted a second copy of their comment letter with minor errata as noted on the cover sheet. Because the errata did not change any of the original comments, the entire second copy of the letter was coded as F2-41. The responses to the EPA comment letter are provided above and in Section D.4, Common Responses.

## D.5.3 NA1 – Responses to Comments from the Quechan Indian Tribe (May 17, 2010)

In addition to the direct destruction of cultural resources that will result from the development of one million acres of land for solar and wind projects, there will also be indirect visual impacts. For example, the Tribe is concerned that certain ceremonial areas located in the Yuha, just south of the project area, would be affected by the view of this project. The cultural and ceremonial use of the landscape will be impaired when tens of thousands of solar pedestals are visible from these areas.

NA1-9

- NA1-9 This comment raised concerns that there would be indirect visual impacts to certain ceremonial areas. As discussed in the SA/DEIS and the FEIS, the project was determined to result in unavoidable adverse visual impacts which likely will also include areas identified as ceremonial areas. The adverse visual impacts of the project cannot be fully mitigated and cannot be avoided. However, the Programmatic Agreement discussed in detail in Section 4.5, Cultural Resources, in the FEIS provides an opportunity for Native American Tribes and other interested parties to consider the project impacts on cultural resources including ceremonial areas, and the mitigation to reduce those effects as feasible.
  - F. The Inadequate Cultural Resource Identification, Evaluation, and Mitigation Efforts Also Violate California Law.

CEQA requires development of appropriate mitigation measures. "Formulation of mitigation measures should not be deferred until some future time. However, measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way." CEQA Guidelines, § 15126.4(a). The DEIS fails to development appropriate mitigation measures relating to cultural resources. The only mitigation referenced is the Draft PA, which as discussed above, does not contain any actual mitigation measures or performance standards.

NA1-13

California law also favors the preservation of cultural resources in place and the avoidance of impacts to such resources. Appendix K to the CEQA Guidelines states that "public agencies should seek to avoid damaging effects on an archaeological resource whenever feasible." The commentary on Appendix K states that "an important principle in this appendix is the emphasis on avoidance of archaeological sites. . . where the proposed project includes a potential impact on a site, avoidance is suggested as a preferred mitigation measure where all other factors are equal." Here, hundreds of resources will be directly or indirectly impacted. Yet, the rush to issue certification and approve the right-of-way forecloses a meaningful opportunity to design the project in a way that will avoid resources or to consider whether an alternative location should be selected.

NA1-13 As a Federal agency, the BLM is not bound by the requirements of CEQA. However, the FEIS describes the Agency Preferred Alternative which was developed from the IVS project specifically to avoid areas of known cultural sensitivity with respect to sacred burial sites and certain drainages, while still accomplishing the majority of the project and meeting the BLM purpose and need. Because the BLM is not bound by the requirements of CEQA, no comment on the intent of meeting the requirements of Appendix K of the CEQA Guidelines is provided.

Refer also to response to comment NA1-12, above, regarding the status of the Programmatic Agreement and the formulation of mitigation measures addressing the project impacts on cultural resources.

## G. The Staff Assessment Fails to Comport With CEQA Provisions Addressing Disposition of Discovered Human Remains.

The project area is known to contain sites containing human cremations of potentially historic origin. The full extent of the cremation sites is not currently known to the Quechan Tribe due to the lack of consultation and lack of a cultural resource report. CEQA Guidelines Section 15.064.5(d) states that "when an initial study identifies the existence of, or the probable likelihood, of Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage Commission as provided in Public Resource Code 5097.98." Public Resource Code 5097.98 provides a process for identifying the most likely descendants of the remains and provides for inspections, consultations, and development of agreements with the most likely descendants for the appropriate treatment of the remains. It does not appear that the CEC or the applicant have compiled with these provisions. Due to the lack of consultation, the Quechan Tribe lacks sufficient information at this time to know whether its people are the most likely descendants of the discovered remains. Further investigation and consultation with affected tribes (including the Quechan) is required before appropring any project impacting these sacred cremation sites.

NA1-14

NA1-14 Refer to response to comment NA1-13, above.

## D.5.4 S1 – Responses to Comments from the California Department of Transportation (May 7, 2010)

#### Utility Encroachment:

Please refer to Caltrans Encroachment Permits Manual

(http://www.dot.ca.gov/hg/traffops/developserv/permits/encroachment\_permits\_manual/index.ht ml) for guidance on utility encroachment. The following information is contained in Chapter 600, Table 6.7 (page 6-35) of the Encroachment Permit Manual. Line supports for overhead lines crossing freeways must comply with these requirements, they:

- Should have a minimum lateral clearance of 30' from the edge of a through lane and 30' from the edge of a ramp lane, when possible.
- Shall be located outside the right-of-way (R/W) or between the R/W line and access control line if different. Any other placement must be approved by the Division of Design, Chief.
- 3. Should not be permitted in medians.
- 4. Should not be permitted on cut or fill slopes.
- 5. Shall not impair sight distances.
- 6. Shall be compatible with access requirements.
- S1-2 It is acknowledged that any transmission lines crossing or within State highway right-of-way (ROW) must meet the requirement in the California Department of Transportation (Califrans) Encroachment Permit Manual. The project applicant will coordinate with Califrans as appropriate regarding transmission lines crossing or within State ROW.

#### Traffic:

Piease refer to Caltrans Encroachment Permits Manual for guidance on Traffic Control. The following information is contained in Appendix E (page E-42) of the Encroachment Permit Manual. For placement of aerial lines, installation or remove of overhead conductors crossing a freeway require traffic control by the California Highway Patrol (CHP) and usually occur on weekend mornings. The CHP can perform a rolling break in traffic on most highways to allow

S1-3

S1-2

up to a five-minute clearing. These breaks are adequate for simple cable installation. Utility personnel carry the conductors across the fieeway lanes and hoist them into place on the opposite side of the freeway. On larger conductor crossings such as transmission lines, I'o or greater in diameter, districts may determine that safety nets are needed to prevent transmission lines from falling on traffic during cabling installations. Temporary safety-net support poles are placed at protected locations outside shoulders and in medians. If locations for temporary supports are not available, the utility company may use K-rail and sand barrel crash cushions. After rope nets are strung during CHP traffic breaks other work is then allowed to proceed. Placement of the aerial line may be belicopter.

S1-3

S1-3 It is acknowledged that project related construction traffic on or that may affect State highway facilities will require a traffic control plan consistent with the requirements in the Caltrans Encroachments Permit Manual. The project applicant will coordinate with Caltrans as appropriate regarding the need for construction related traffic control on and crossing State highways.

Any work performed within Caltrans R/W must provide an approved final environmental document including the California Environmental Quality Act (CEQA) determination addressing any environmental impacts within the Caltrans' R/W, and any corresponding technical studies. If these materials are not included with the encroachment permit application, the applicant will be required to acquire and provide these to Caltrans before the permit application will be accepted. Identification of avoidance and/or mitigation measures will be a condition of the encroachment permit approval as well as procurement of any necessary regulatory and resource agency permits

S1-5

S1-5 It is acknowledged that Caltrans will require final environmental documentation, including appropriate avoidance, minimization, and mitigation measures, as part of any encroachment permit application. Note that the final environmental documentation for the IVS project will consist of a Final Staff Assessment (FSA) prepared by the California Energy Commission to comply with the requirement of the California Environmental Quality Act (CEQA) and a Final Environmental Impact Statement (FEIS) prepared by the BLM to comply with the requirements of the National Environmental Policy Act (NEPA).

## D.5.5 L2 – Responses to Comments from Imperial County (May 27, 2010)

5) In the event that an on-site water well is needed prior to construction or at any point during the operation of the facility, the Courty will be the CEOA "lead agency" for any required Conditional Use Permit for on-site water wells as well as CEQA "responsible agency" for other related environmental reviews, e.g. encroachment permits for local County road improvements, encroachment permits, needed for the approval of the IVSP proposal.

L2-

- L2-6 None of the Build Alternatives would require the use of any new well or well water on the project site. Well water, from an off site well already permitted for the withdrawal of water, is proposed to be used during constriction an initial operations. Refer to Chapter 2, Alternatives Including the Proposed Action, for a description of that project feature. In addition, refer to Section D.4.2 for responses related to the project alternatives.
- 6) The project indentifies a single 175,000 gallon water tank along with portable fire extinguishers for fire protection. The County was not able to find within the DEIS the fire protection/emergency response plan, emergency fire access plan, the water lines, and hydrogen storage facility.

L2-

L2-7 The required components of the Fire Prevention Plan are described in Section 4.6, Fire and Fuels Management, in the FEIS.

The hydrogen storage project feature was modified after the publication of the SA/DEIS. That modification is described in Chapter 2, Alternatives Including the Proposed Action, and is evaluated further in Chapter 4, Environmental Consequences, in the FEIS. That evaluation is also summarized in Appendix B, Determination of NEPA Adequacy (DNA), in the FEIS. Section D.4.16, Determination of NEPA Adequacy, earlier in this responses to comments appendix, briefly describes the purpose and content of the DNA relative to modifications made to the Build Alternatives.

7) It is the County's understanding that the 30,000 dishes will utilize a closed-cycle heating/expansion system using Hydrogen gas as the fuel source. It is expected that there will be a significant amount of Hydrogen gas (195 cubic feet per dish, or 5,850,000 cubic feet at build-out), and that each dish will need to replace it's Hydrogen gas twice a year. The Hydrogen gas, which is highly explosive, will be produced, transported, stored, and handled during maintenance and replacement all on-site.

The project description states that there will be a two day supply of Hydrogen gas onsite at any given time. Based on 30,000 dishes that need to have their Hydrogen gas replaced twice a year and assuming that every day of the year the facility staff is replacing Hydrogen gas, a two day supply would be able to cover 164 dishes, at 195 cubic feet per dish the storage tank(s) would need to be able to hold 31,980 cubic feet of Hydrogen gas. The County did not find an analysis of an on-site "worst case" blast scenario and/or a proposed fire protection/emergency response plan to protect IVSP employees and all surrounding sensitive parties and wildlife.

8) The County Land Use Ordinance (LORS) identifies the land as Government Special Public (G/S Zone) and Open Space Preservation (S-2 Zone). In a previous letter to the CEC (August 2008), the County questioned the proponent's statement in their "Executive Summary", that "...According to Imperial County LORS, solar energy conversion is an allowable use for the Project Site..." (emphasis added). The proponents were to provide the authority for the above statement and we are awaiting the response.

Neither the County G/S Zone nor the S-2 Zone specifically identify a Suncatcher type solar thermal project as an allowed or conditionally allowed use. For projects or uses that are not listed in a given land use zone, the applicant has two options, go through a "change of zone" process or a "similarity of use" process. During the past couple of years, the County has held two similarity of use processes on solar projects.

The first similarity of use process was to allow a solar photovoltaic project in the S-2 Zone, and the other was to allow a Suncatcher type solar thermal test project on a G/S Zone. Both were found to be similar in use to their respective land use zones. However, the IVSP project has not been specifically considered as similar in either land use zone. In the case of the S-2 Zone, the solar projectwas photovoltaic flat panels not 40 foot high solar thermal dishes, while in this case of the G/S zone the project was a solar thermal dish project, but located on a college campus and only a relatively small 60 dish 1.5MW, test project. The similarity of uses did not cover the development of a 6,500 acre 30,000 Suncatcher type solar thermal project.

The County Land Use Ordinance would require that project to go through a "similarity of use" process to determine whether the Suncatcher type solar thermal project is consistent with similar uses in the given zones. Alternatively, the project proponent could request that the CEC exercise its authority to override local government laws, ordinances, regulations and standards (LORS). Pursuant to State Law, the "LORS Override" can be done only if the CEC finds that the facility is required by the public convenience, a necessity and that there are not any prudent and feasible alternatives

12.0

L2-8

Discussion of the worst-case release and explosion of the hydrogen on-site is L2-8 provided in Section 4.11, Public Health and Safety, and Hazardous Materials, in the FEIS.

County Land Use Ordinances do not apply to lands under the jurisdiction of the BLM.

- 9) The IVSP, CEC and BLM staff have been previously informed that the solar project will also need to be reviewed by the Imperial County Airport Land Use Commission for a
- The project site is not within 20,000 feet of an existing airport. It is well outside the L2-9 runway protection zones for the Imperial County Airport. Therefore, it is not expected that the Federal Aviation Administration (FAA) regulations (Code of Federal Regulations Part 77) would apply to the proposed project. Part 77 sets and implements standards for determining obstructions in navigable airspace and the requirements for notice to the FAA of certain proposed construction or alteration that may obstruct navigable airspace. Because the project site is not within 20,000 ft of an airport, it is not expected to obstruct any airspace and, therefore, would not require review by the Imperial County Airport Land Use Commission (ALUC). However, the ALUC had the opportunity to comment on the draft environmental document during the public review period and no comments were received from the ALUC. Therefore. no determination of consistency is expected to be required from the ALUC for the proposed project.
- 10) The project states that the applicant expects the construction period to be 44 months, but does not specify if that is for the entire project or just Phase I.

- As indicated in Chapter 2, Alternatives Including the Proposed Action, in the FEIS the L2-11 construction and installation of the 30,000 SunCatchers for the Imperial Valley Solar (IVS) project will take approximately 40 months. This includes both Phases I and II.
- 12) The granting of easements on private lands to and from currently land-locked private parcels within the IVSP project needs to be addressed and it's the County position that all parcels requiring access have both "legal and physical access" prior to IVSP final approval by the CEC and BLM;

Measure LAND-1 provided in Section 4.9, Land Use, in the FEIS addresses the 12-13 private parcels and the application of the Subdivision Map Act.

- 13) As previously indicated to the CEC, BLM and IVSP staff, a CUP approval will be required from the Imperial County Planning Commission for the drilling and operation of a water well(s) on-site to supply the project site. Any water from the New River to the I
- L2-14 Refer to response to comment L2-6, above.

a water well(s) on-site to supply the project site. Any water from the New River to the site will also require biological studies to determine impacts to biological and wildlife habitat.

L2-15 This comment raised concerns about the lack of surveys for special-status species that could be affected by the diversion of reclaimed water from discharge into the New River from the Seeley Wastewater Treatment Plant (SWWTP) to provide water for the IVS project. It is unknown if the diversion would result in affects to downstream wetlands; however, analysis has indicated that the reduction of flows in the New River from the proposed new water use would not be substantial. Additionally, subsequent to the release of the SA/DEIS, focused surveys for Federally listed species have been conducted with negative results at the downstream areas in question.

Please provide the County with responses to the above concerns and other Imperial County
Departments may also have project-related comments as well.

L2-16 Appendix D, Public Comments on the Draft Environmental Impact Statement (DEIS), in the FEIS includes responses to all substantive comments received by the United States Bureau of Land Management (BLM) on the DEIS.

### D.5.6 01 – Responses to Comments from Public Employees for Environmental Responsibility (April 20, 2010)

The CEQA Objectives statement does not include or imply an underlying purpose or need for the project, only development details.

01-4

O1-4 As a Federal agency, the BLM is not bound by the requirements of the California Environmental Quality Act (CEQA). Compliance with the requirements of CEQA for the IVS project including CEQA objectives is the responsibility of the California Energy Commission. Therefore, a CEQA objectives statement is not included in the FEIS because it is not required as part of the Federal National Environmental Policy Act (NEPA) compliance process. Refer to Chapter 1, Introduction and Purpose and Need, in the FEIS for the BLM's purpose and need for the project which is required information under NEPA.

Lack of a list of references. References made in text should be cited in a list of references

01-9

O1-9 The references used in the preparation of the SA/DEIS and the FEIS are provided in Chapter 9, References, in the FEIS.

Inadequate closure protocols and Surety bonding, p. E-11 states that "Laws, Ordinances, Regulations and Standards (LORS pertaining to facility closure are identified in the sections dealing with each technical area" (Sections C-1 through 15 and D-1 through 5). The promised discussions relating to closure protocols are largely missing from technical area assessments. Specific guidelines for achievement of "restoration" of land post-closure are lacking and the Surety Bonding does not protect the public from the abuses of mine reclamation bonding, which are well known. A Restoration in the sense of returning the land to its pre-development condition is probably impossible, as discussed below

The level of Surety bonding is placed in the hands of the BLM Authorized Office. This is not adequate for the very complex matter of reclaiming severely disturbed aird lands. The cost, and therefore the level of bonding required, needs to be judged by an independent expert group fully knowledgeable of the problems involved, the time that will be required for the best possible results, the detailed nature of an adequate monitoring program and the actions required based on monitoring results, and the time interval over which restoration activities and monitoring are to be maintained specified. Responsibility for reclamation should be in the bands of independent land restoration specialists, not the BLM, which is insufficiently staffed (as is amply demonstrated by failure to enforce mandated mitigations in numerous projects, including, for example, transmission lines).

01-10

O1-10 The project does not include a mine reclamation component.

p. B.2-2. Rejection of all offsite alternatives deemed unreasonable by the BLM because, as discussed below, none would accomplish the purpose and need for the proposed action. Considering that the BLM statement of Purpose and Need addresses only paperwork requirements, not real underlying purposes and needs as required by NEPA, this rejection is unreasonable.

p. B.2-2. Out of hand rejection of other generation technologies simply underscores impact issues of the proposed project. For example, this document does not demonstrate differences in greenhouse gas releases on any rigorous basis, including effects of release by land disturbance to create the facilities, the GHG cost of producing the hydrogen to be used by Solar Two, and the actual extensive use of natural gas as at existing concentrating solar power plants.

01-11

p. B.2-5. Alternatives Table 1. The statement "While it will very likely be possible to achieve 750 MW of distributed solar energy over the coming years, the limited numbers of existing facilities make it difficult to conclude with confidence that this much distributed solar will be available within the timeframe required for the SES Two project" is abourd on two counts: 1) there is no existing SunCatcher facility to rely on either, and 2) the only requirement that Solar Two meet the chosen timeframe is to qualify the

builders for free federal dollars. Moreover, distributed solar power does not require grid interconnection, except for local small plant operations, which is much more limited than remote power plants.

01-11

O1-11 The National Environmental Policy Act (NEPA) does not require the greenhouse gas (GHG) analysis and comparison suggested in this comment. Refer to Sections 3.4 and 4.4, Climate Change, in the FEIS for the GHG analysis conducted for the project.

Wind energy projects are already being pursued in counties north of Imperial and San Diego Counties. Refer also to Section 2.8.3, Other Alternatives Considered but Eliminated from Detailed Analysis, in the FEIS for discussion of why wind energy technologies were not considered as alternatives for the proposed project.

p. C.7-15. Further treatment of imported waste water is said to "demineralize" the water for mirror washing by RO. Tertiary treated water contains many contaminants in addition to "minerals" so the actual composition of the water after on-site treatment must be stated

01-20

O1-20 The on-site treated water will meet all water requirements and will be collected in a sealed basin. Section 4.17, Hydrology, Water Use, and Water Quality, in the FEIS for the discussion of waste water treatment and requirements for the Build Alternatives.

01-22

D.1 - Facility Design

p. D.1-1 "The California Energy Commission staff concludes that the design, construction, and eventual closure of the project and its linear facilities would likely comply with applicable engineering laws, ordinances, regulations and standards. The proposed conditions of certification, below, would ensure compliance with these laws, ordinances, regulations and standards.

p. D.1.2 Notes Facility Design not intended as a CEQA or NEPA analysis. The LORS applied to engineering design and construction relate only to assurance of public safety—thus have nothing to do with environmental impacts or reclamation upon closure.

D.1.3 Laws, Ordinances, Regulations and Standards

p. 5.3-2 [Note, inclusion of boiler plate statements/discussions without repagination in this SA/DEIS is confusing and unnecessary]. Applicable LORS:

Federal Title 29 Code of Federal Regulations, Part 1910, Occupational Safety and Health Standards

State, 2007 California Building Standards Code (also known as Title 24, California Code of Regulations)

Local. Imperial County regulations and ordinances

General. American National Standards Institute, American Society of Mechanical Engineers, American Welding Society, American Society for Testing and Materials

O1-22 Decommissioning and closure are discussed in certain sections where it is relevant throughout the FEIS. For example, Sections 4.3.5.2 in Biological Resources and 4.16.4.2 in Visual Resources discuss the impacts of decommissioning and closure related to those types of resources.

C.2 - Biological Resources

p. C.2-28 Impact analysis characterizes "effects to plant communities as temporary or permanent, with a permanent impact referring to areas that are paved or otherwise precluded from <u>restoration to a pre-project state</u> [emphasis added]... Natural recovery rates from disturbance in these systems depend on the nature and severity of the impact. For example, crossote bushes can resprout a full canopy within five years after damage from heavy vehicle traffic (Gibson et al. 2004), but more severe damage involving vegetation removal and soil disturbance can take from 50 to 300 years for partial recovery; complete ecosystem recovery may require over 3,000 years (Lovich and Bainbridge 1999). In this analysis, an impact is considered temporary only if there is evidence to indicate that pre-disturbance levels of biomass, cover, density, community structure, and soil characteristics could be achieved within five years."

This statement means that disturbances from virtually all road-building, structure installation, including placement of SunCatchers, transmission and pipe lines, retention and evaporation basins disturbance will be "permanent" and thus "precluded from restoration to a pre-project state."

01-24

C.4 - Geology and Paleontology

p. C.4-1. It is stated that "Based on its independent research and review, "It is staff's opinion that the Stirling Energy Systems Solar Two Project will be designed and constructed in accordance with all applicable laws, ordinances, regulations, and standards and in a manner that both protects environmental quality and assures public safety."

This is not consistent with the biological opinion cited above, which indicates that virtually all development activities will result in non-temporary—i.e. permanent—impacts that degrade environmental quality.

p. C.4-1. The above staff opinion is also inconsistent with the following staff objective on the same page: "Staff's objective is to ensure that there will be no consequential adverse impacts to significant geological and paleontological resources during the project construction, operation, and closure of the proposed project."

There nothing relevant to application of LORS to "restoration" following closure in this section, and only indirect inferences can be made as in the above comments.

O1-24 The cited impacts are considered permanent due to the length of time (40 years) the project is expected to operate. The term used as a characterization of the impact does not indicate preclusion from restoration.

### C.8 - Land Use, Recreation, and Wilderness

This section contains no information on application of LORS to post-closure "restoration"

## C.12 - Transmission Line Safety and Nuisance

This section contains no information on application of LORS to post-closure "restoration"

01-26

#### C.14 - Waste Management

This section contains no information on application of LORS to post-closure "restoration"

Search of the technical sections did not yield substantive information pertaining to LORS application to facility closure as stated on p. E-11. Full discussion of compliance of closure protocols with applicable LORS should be provided.

O1-26 There are no laws, ordinances, regulations, and standards (LORS) relevant to land use that would apply to site restoration. Transmission line safety would only be relevant if the transmission lines were excluded from the closure and remained active. The LORS for public health and safety regarding hazardous waste would be the same LORS as would apply for construction.

## D.5.7 O2 – Responses to Comments from the Center for Biological Diversity (May 26, 2010)

Because the project approval process includes a quasi-judicial process in the California Energy Commission, the Center hereby incorporates by reference all of the materials before the California Energy Commission regarding the approval of this project. BLM is a party to the CEC process, which is being conducted in concert with the BLM approval process, and BLM has access to all of the documents (which are also readily accessible on the internet), therefore, BLM should incorporate all of the documents and materials from that process into the administrative record for the BLM decision as well.

02-4

O2-4 The BLM will prepare an administrative record that appropriately supports the Draft and Final Environmental Impact Statements. Refer to Section D.4.15, CEC Process, for discussion regarding the CEC process for complying with the requirements of CEOA.

BLM is required to "describe the environment of the areas to be affected or created by the alternatives under consideration." 40 CFR § 1502.15. The establishment of the baseline conditions of the affected environment is a practical requirement of the NEPA process. In Half Moon Bay Fisherman's Marketing Ass'n v. Carlucci, 857 F.2d 505, 510 (9th Cir. 1988), the Ninth Circuit states that "without establishing... baseline conditions... there is simply no way to determine what effect [an action] will have on the environment, and consequently, no way to comply with NEPA." Similarly, without a clear understanding of the current status of these public lands BLM cannot make a rational decision regarding proposed project. See Center for Biological Diversity v. U.S. Burean of Land Manaegement, et al., 422 F. Supp. 2d 1115, 1166-68 (N.D. Cal. 2006) (holding that it was arbitrary and capricious for BLM to approve a project based on outdated and inaccurate information regarding biological resources found on public lands)

02-19

The DEIS fails to provide adequate baseline information and description of the environmental setting in many areas including in particular the status of rare plants, animals and communities

O2-19 These comments expressed concern about the adequacy of the baseline biological resources and impacts assessment analysis. Additional biological resource surveys have been conducted, including focused surveys for special-status plant species, and additional FTHL surveys. The baseline data at present are current and address the biological components on the project site. The Agency Preferred Alternative (the IVS Project with modifications) has been designed with the baseline biological resources data taken into consideration to avoid and minimize effects on biological resources to the greatest extent feasible while still meeting the project purpose and needs.

The flat-tailed homed lizard is currently (once again) being considered for protection under the federal Endangered Species Act and is sorely in need of additional protections to stem population declines due to ongoing threats. These issues should have been fully explored in the baseline discussion. Although the DEIS admits that the "The 6,063-acre plant site and the 92.8-acre off-site transmission line provide suitable habitat and food source to support FTHL (SES 2008a)." The DEIS briefly mentions the current status of the species but does not clarify the need for additional protective measures to ensure recovery. As detailed below in the section regarding the lizard, the baseline has significantly degraded over the more than 15 years since listing for this species was first proposed and the threats are increasing including the cumulative impacts from this and other renewable energy projects.

The DEIS also uses lack of the land use designation in the FTHL Management Area as a way of minimizing the importance of this area for flat-tailed horned lizard recovery but fails to explain the history of the current designation. The BLM codified a majority of the Management Areas as Areas of Critical Environmental Concern<sup>6</sup> However, the FTHL Rangewide Management Strategy (2003) failed to include connectivity between the Management Areas, including the proposed project site.

The baseline descriptions in the DEIS are similarly inadequate for other species including PBS. It acknowledges the inadequacy of the botanical surveys and in fact proposes additional seasons surveys (both spring and late summer/fall) in order for more accurately evaluate the baseline for on-site plant resources as the basis for adequate impact analysis.

As discussed below, because of the deficiencies of the baseline data for the proposed project area, the DEIS fails to adequately describe the environmental baseline. Many of the rare and common but essential species and habitats have incomplete and/or vague on-site descriptions that make determining the proposed project's impacts difficult at best. Some of the rare species/habitats baseline conditions are totally absent, therefore no impact assessment is provided either. A supplemental document is required to fully identify the baseline conditions of the site, and that baseline needs to be used to evaluate the impacts of the proposed project.

02-20

02-20

O2-20 Refer to response to comment O2-19, above.

Birds

As the DEIS notes, the proposed project area is rich in bird resources. The Imperial Valley, which is directly adjacent to the site, is noted as an Important Bird Area <sup>13</sup>. Birds migrate to the Imperial Valley from San Diego County — a route that goes over the project site. The DEIS fails to evaluate the impact to this migratory pathway from the proposed project.

The DEIS fails to address the fatalities that have been documented to occur from birds running into mirrors. Adjacent to the proposed project site are agricultural fields, which also attract birds. The DEIS does not quantify the number of birds (rare, migratory or otherwise) that use/traverse the project site (for example a mean daily count), nor does it evaluate the impact to birds. McCrary setting the project site is over 2500 ha (over 78 times larger) and has a different kind of mirror and power plant configuration—the DEIS should have analyzed the likely impacts to birds from the proposed project mirror configuration in the suncatcher design. Lacking baseline data of mean daily count of birds on the project site, analysis of the impacts to birds is impossible. Based on the existing literature, the impact may be significant.

Migratory birds were noted to occur on the proposed site (DEIS at pg. C.2-37). Clearly the site is within a migratory pathway and the migratory elevation is a key issue that needs further analysis. Mirrors within migratory elevations will create impacts to migratory birds. It is possible that these impacts could be avoided or minimized if mirrors are properly sited. These analyses needed to be included in the DEIS and in this instance still need to be done. Detailed surveys must form the basis for the evaluation of impacts to biological resources as required by NEPA. The failure to provide the baseline data from which to make any impact assessment violates NEPA. This failure to analyze impacts is not only a NEPA violation, but for migratory birds, may also lead to a violation of the Migratory Bird Treaty Act, 16 U.S.C. §§ 703 -711, because migratory birds may be "taken" if the proposed project is constructed.

O2-25

Additionally, two 2,500,000-gallonevaporation ponds are proposed to be constructed on site. While the ponds are proposed to be fenced and netted, they still have the potential to attract birds onto the site—a noasis in the desert - and into the mirrors. DEIS at C.2-29. The DEIS is unclear about the amount of time water may be retained in these basins and no discussion of this infrastructure is identified in the biological section of the DEIS, nor are impacts analyzed or minimization measures identified. Examples of minimization could include requiring covered or contained infrastructure, which would not only eliminate bird (and other wildlife) attraction, but would reduce evaporation and therefore water use in this arid environment. Alternatively, the pools could be required to be emptied in a less than 24 hour period so they would not be an attractant to birds (including ravens).

O2-25 This comment raised concerns about the lack of analysis about the potential for the evaporation ponds to attract birds. The expressed concern was that the attraction of the ponds would result in a risk of avian injury and mortality from increased collisions with the SunCatchers. The project applicant has proposed measures to reduce the attractiveness of the evaporation ponds to wildlife. The transmission line towers in the immediate project area and proposed for connection of the IVS project to the Imperial Valley Substation are no taller than 110 feet (ft). Bird kills from collisions are more typical with structures that are greater than 300 ft tall. The SunCatchers will be 36 ft tall. Additionally, on completion of project construction, the reduced amount of habitat on the project site would result in the attraction of bird species that are adapted to living under disturbed conditions and in close proximity to development.

#### Burrowing Owls

The DEIS notes that "Three active burrowing owl burrows were located on the project site, one along the transmission line corridor, one near the off-site reclaimed waterline, and four at adjacent off-site locations (SES 2008a)" for a total of nine active burrowing owl burrows. C.2-26. Preliminary results from the 2006-7 statewide census identified that Imperial county was a strong-hold for Western burrowing owls. "However, the DEIS fails to evaluate the potential impact of the proposed project on the regional distribution of owls.

O2-26

While "passive relocation" does minimize immediate direct take of burrowing owls, ultimately the burrowing owls' available habitat is reduced, and "relocated" birds are forced to compete for resources with other resident burrowing owls and may move into less suitable habitat, ultimately resulting in "take".

#### 5. Badger and Desert Kit Foxes

Badgers and desert kit foxes were identified in the project area during surveys. DEIS C.2-38-39. Literature on the highly territorial badger indicates that badger home territories range from 340 to 1,230 hectares. Therefore, the proposed project could displace at least one badger territory. While surveys prior to construction are clearly essential, even passive relocation of badgers into suitable habitat may result "take". Excluding badger from the site is likely to cause badgers to move into existing badger's territory. The same scenario of passive relocation for kit fox may also result in take. Studies need to be provided on both on- and off-site badger and kit fox territories if animals are to be passively relocated in order to increase chances of persistence. At a minimum, the revised or supplemental DEIS should identify suitable habitat nearby if the project is relying on passive relocation as a mitigation strategy.

O2-26

O2-26 This comment suggested that the passive relocation planned for western burrowing owl, American badger, and desert kit fox would constitute "take" of these species by forcing them into areas already occupied, thus resulting in take as a result of competition for resources. Passive relocation of western burrowing owls in the Imperial Valley is an accepted mitigation measure. The BLM listed as sensitive western burrowing owls in the Imperial Valley have adapted to dynamic agricultural practices and frequent disturbances related to such practices. Approximately 71 percent of the western burrowing owls in California occur in the Imperial Valley and their population densities are much higher in the agricultural areas of the Imperial Valley than elsewhere. American badger and desert kit fox are not Federally listed as threatened or endangered, and are not listed as BLM sensitive animal species. Therefore, the passive relocation of the western burrowing owl, American badger, and/or the desert kit fox would not result in "take" as defined by the United States Fish and Wildlife Service or the California Department of Fish and Game.

## 7. Decommissioning and Reclamation Plan

Desert lands are notoriously hard to revegetate or rehabilitate. In and revegetation never supports the same diversity that originally occurred in the plant community prior to disturbance. The task of revegetating over six square miles will be a Herculean effort that will require significant financial resources. In order to assure that the ambitious goals of the revegetation effort is met post project closure, it will be necessary to bond the project, so that all revegetation obligations will be met and assured. The bond needs to be structured so that it is tied to meeting the specific revegetation criteria.

The project will cause permanent impacts to the on-site plant communities and habitat for wildife despite "revegetation". Revegetation criteria are lacking in the DEIS. If criteria are based on the agency's regulations identified in any of the bioregional plans for the CDCA (NECO, NEMO, WEMO)? those rehabilitation strategies? only requires 40% of the original density of the "dominant" perennials and only 30% of the original cover. Dominant perennials are further defined as "any combination of perennial plants that originally accounted cumulatively for at least 80 percent of relative density". "I These requirements fail to truly "revegetate" the plant communities to their former diversity and cover even over the long term. The Decommissioning and Reclamation Plan is not available for public review, and analysis is the DEIS states "The applicant's data response (2008ft) does not provide sufficient information to guide the decommissioning of the project disturbance area, nor does it provide adequate information regarding the funding needed for those activities". DEIS at C.2-51. This clearly fails to adhere to BLM's own regulations 43 CFR 3809.550 et seq. that require a more detailed reclamation plan and a cost estimate.

O2-28 This comment raised concern about the level of effort that would be required to adequately restore the desert vegetation communities on the project site after decommissioning of the plant. Specifically, the commenter expressed concern about the funding of such an effort, the lack of criteria in the SA/DEIS, and that the applicable California Desert Conservation Area Plan (CDCA Plan) criteria are not stringent enough to result in restoration of the desert vegetation communities that would be affected by the IVS project. The BLM will require that the applicant provide bonding to fund future reclamation efforts. The applicant is preparing a reclamation plan that will have more stringent criteria than the CDCA Plan and will be subject to BLM review and approval before the BLM considers approval of the right-of-way grant.

The FSA/DEIS here fails to adequately identify and analyze the potential growth inducing impacts in the area. For example, it is possible that if the Seeley water reclamation project does go forward it could act as a magnet for other industrial development in the area along with the new energy infrastructure for the proposed project.

02-39

02-28

O2-39 The proposed improvements and upgrades to the Seeley Wastewater Treatment Plant are being addressed in a separate Environmental Impact Report (EIR) being prepared under the requirements of the California Environmental Quality Act (CEQA) by the

Seeley County Water District. That EIR will address the potential impacts, including potential growth inducing impacts, of those plant upgrades. Those improvements do not require action by the BLM and, therefore, are outside the purview of the BLM.

# D.5.8 O4 – Responses to Comments from the Natural Resource Defense Council and The Wilderness Society (May 26, 2010)

Our principal concerns with the impacts of the Solar Two project at this time relate to three biological resources: Peninsular bighorn sheep which are federally endangered; the flat-tailed homed lizard, currently proposed for federal listing as threatened; and water resources and the habitat values associated with these resources in a desert environment, see "U.S. Army Corps of Engineers Public Notice/Application No.: SPL-2008-01244-MLM, pg. 11". In addition, we have identified several other issues requiring more robust analysis, namely the use of hydrogen and the potential for project phasing.

Biological Resources: The DEIS treatment of the observance of federally endangered bighorn sheep on the project site is particularly deficient. Merely attributing the occurrence of a ewe group of bighorn sheep to a "transient occurrence" without further investigation and analysis is inadequate, id. ES-21. The DEIS indicates that the project site provides marginal foraging habitat, id. C.2-18. Under varying precipitation conditions and levels of vegetation growth, marginal foraging habitat may supply an important part of the sheep's diet and could continue to attract foraging activity on an ongoing basis.

The document indicates that Department of Fish and Game biologists, and biologist for the project applicant "have speculated that the bighorn sheep sited at the project location could have been flushed by OHV activity and possibly became disociented and wandered onto the project site," id. C.2-24. While OHV activity in the area can certainly affect movement patterns of sheep, this is not the only possible explanation for the presence of the ewe group on the site, and the DEIS must not assume that it is. The final EIS must analyze avoidance, minimization and mitigation measures based on the assumption that bighorn sheep will continue to use the site on an ongoing basis for forage as their previous visitation suggests tarther than simply dismiss their presence as an anomaly. For example, we would suggest consideration of concrete measures to mitigate for loss of habitat, such as purchase of replacement lands, as well as ongoing monitoring on the site to ensure that any subsequent usage by the sheep is well-documented and any necessary modifications to operations are made.

A second species of concern found on the project site is the flat-tailed horned lizard. As noted above, this species is currently being considered for listing as federally threatened, id. ES-12. Estimates of population in the project area vary w.dely from 2,000 to 5000, id. C.2 22. Greater specificity regarding this population is needed to fully understand possible impacts to this species especially in the context of the pending listing.

## O4-3 Refer to response to comment O4-4, below.

The third area of concern related to biological resources is the impacts to water resources, in particular jurisdictional water of the United States and the state of California and biological values

04-4

04-4

associated with those waters. The Army Corps of Engineers has published detailed comments on the impacts that the proposed project and alternatives identified in this DEIS would have on the Westside Main Canal and the Coyote Wash, water resources which are deemed jurisdictional waters of the United States. Given the scarcity of such water resources in the desert environment; it is critical that the BLM fully consider the comments provided by the Army Corps. The D EIS includes the alternatives proposed by the Army Corps which supports a robust and full analysis of real alternatives.

In addition to the alternatives analyzed in the DEIS, we understand that a variation on the project has been proposed to the Army Corp based on their concerns – this new proposal apparently would reduce the 750 MW proposal to a 709 MW facility. This modification may reduce impacts to water resources and must be presented to the public along with a full analysis of its impacts in order to permit its selection.

Water resources are also important with regard to the project's on-site water use — an important factor to analyze in the review of all solar projects proposed for desert environments. The DEIS does not indicate what source of water will be used if the upgrades to the Seeley Wastewater Treatment Plant are not complete prior to water being needed at the project site for construction, operations and maintenance — and in fact we understand that they will not.

We understand through documents available on the California Energy Commission website that the applicant has obtained purchase rights to 40 acre feet per year of water under an existing permit for water from a single source aquifer (see Supplement to the Imperial Valley Solar Application for Certification dated May 2010). These documents indicate that there will be no change in use at the well which has been operated by the Dan Boyer Water Company as a source for commercial water under a permit since the 1950s. CEC staff are still in the process of reviewing these supplemental materials. Regardless of the CEC determination, the issue of interim water use must be acknowledged and addressed in the final EIS as well.

Of significant concern overall regarding impacts to biological resources is the statement that, "With implementation of staff's proposed conditions of certification, staff is still uncertain if construction and operation of the proposed SES Solar Two Project would comply with all federal state and local LORS relating to biological resources," id. ES-23. The DEIS indicates that this uncertainty is due to the lack of information regarding impacts to, and mitigation for, impacts to waters of the U.S. id. ES-23. We expect to see greater certainty related to impacts to these waters of the U.S. and by association overall biological resources in the final EIS. In addition, we note that plant surveys have been deemed insufficient by staff and per staff recommendations in the DEIS are to be completed in the spring and fall of 2010 id. C.2-3

O4-4 This comment raised concerns about the unknown quantity of impacts to Waters of the United States (waters of the U.S.) related to the Seeley Wastewater Treatment Plant (SWWTP) reclaimed water pipeline part of the project site as well as the lack of analysis of the potential interim water supply from the Dan Boyer Well. The applicant has quantified the waters of the U.S. that occur along the proposed pipeline alignment. The applicant plans to either span Waters of the U.S., or to use horizontal drilling to

install the reclaimed water pipeline below waters of the U.S. Spanning of waters of the U.S. and subsurface installation of facilities below waters of the U.S. are not regulated pursuant to the Federal Clean Water Act (CWA). The reclaimed water pipeline in the IVS project will not result in any fill or discharge to waters of the U.S.

Refer to Chapter 4, Environmental Consequences, in the Final Environmental Impact Statement for analysis of proposed short-term use of water from the Dan Boyer Well.

## D.5.9 O6 – Responses to Comments from the Backcountry Against Dumps (June 15, 2010)

The Project "would substantially degrade the existing visual character and quality of the site and its surroundings..." SA/DEIS, p. C.13-1. The SA/DEIS claims that "these impacts are... unavoidable." SA/DEIS, p. C.13-1. This portion of the impact assessment is deficient because (1) the specific nature and magnitude of the aesthetic and visual impacts are undisclosed and unknown; (2) some of the adopted mitigation measures could have significant impacts, but these impacts are undisclosed; and (3) it is unclear whether or not the project transmission line will be relocated or not. (As previously mentioned, the SA/DEIS also unlawfully defers formulation of the glare mitigation plan, so it is impossible to tell whether the plan actually will mitigate the potentially significant glare impacts.)

First, the discussion of aesthetic impacts is insufficient because it does not even attempt to ascertain what the actual aesthetic impacts of the Project will be. The Project applicant failed to include information about the Project's visual impacts on the Jacumba Wilderness, Coyote Mountain Wilderness, Painted Gorge, and Yuha Basin, and "fast-track time constraints" apparently prevented CEC and BLM from creating their own simulations, so the analysis of impacts on these areas is limited at best. SA/DEIS, pp. C.13-10, C.13-18. Staff simply assumed that the Project would have the same impacts as the Plaster City facility, 6 Id. The contrast in the depth of analysis of aesthetic impacts to these areas wis-a-br those areas that the Project applicant has provided information about its striking. The public is prevented from ascertaining anything about the nature of these aesthetic impacts beyond that they will be sizeable. Because the SA/DEIS fails to include simulations of these viewpoints, it is also impossible for members of the public to suggest methods of avoiding or mitigating these impacts.

O6-6

Second, the mitigation measures themselves could have significant impacts, but these impacts were not disclosed. The Guidelines specify that "[i]f a mitigation measure would cause one or more significant effects..., the [se] effects shall be discussed..." Guidelines § 15126.4(a)(1)(D). The SA/DEIS requires the applicant to submit and implement "a glare mitigation plan that minimizes visibility of the" Project by "uitizing... 20 Foot tall slatted fencing...; earth berms; and/or an increase in the setbacks of the" Project from I-8. These mitigation measures, which themselves involve the construction of enormous structures, could have significant visual and other impacts, but these impacts are not disclosed or analyzed.

Finally, mitigation measure VIS-3 is unclear. One the one hand, the SA/DEIS' summary of this' measure states that it would require, "[I]f feasible, re-alignment of the segment of the project transmission line paralleling II-18 to be set back from the roadway at least ½ mile." SA/DEIS, p. C.13-18. But the measure itself contains no such "if feasible' language and instead states that "the applicant shall set back the transmission line..." SA/DEIS, p. C.13-44. This example illustrates why it is

impermissible to rely on undeveloped mitigation measures – the public cannot tell if it is feasible to relocate the transmission line or not. If not, the magnitude of visual impacts will be different than what the SA/DEIS assumes. O6-6

O6-6 This comment raised concerns about that mitigation measures that themselves could have impacts from the construction of structures such as the 20-foot tall fencing. As discussed in the SA/DEIS and the FEIS, Measure VIS-1 provides that BLM would have approval over the surface treatment of structures and coloring of security fencing with vinyl or other non-reflective coating; or with slats or similar semi-opaque, non-reflective material, to blend to the greatest feasible extent with the background soil. BLM staff will review and approve a specific Surface Treatment Plan. In addition, refer to Section D.4.12.3 for other responses related to visual resources.

The discussion of land use impacts is inadequate because (1) the Project has numerous undisclosed inconsistencies with the imperial County General Plan; and (2) because the SA/DEIS contains conflicting information regarding whether or not land use impacts will in fact be significant.

CEQA requires EIRs to "discuss any inconsistencies between the proposed project and applicable general plans and regional plans." Guidelines § 15125(d). In conflict with this requirement, the SA/DEIS fails to disclose two such inconsistencies. First, the Project is inconsistent with General Plan Objective 2.6, which requires "alternative resource production to be in energy zoned areas to minimize off-site impacts and lessen need for more transmission corridors." SA/DEIS, p. C.8-23. The Project is inconsistent with this requirement because it "would not be [located] in an energy zoned area." Id. The SA/DEIS' conclusion that the Project is consistent because the project site "consists of undeveloped desert land" is unreasonable; the "off-site impacts" required to be "minimize[d]" under this Objective are likely to be more, not less, serious in pristine "undeveloped" areas.

06-10

Second, the Project is inconsistent with the Ocotillo/Nomiragee Community Area Plan, which direct that "most private enterprises or land uses are not allowed in" areas under the Open Space designation, such as the Project site. The SA/DEIS concludes that "[a]lthough the proposed project would not be allowed under this area plan's open space classification," the Project is nonetheless consistent with this plan because "BLM jurisdiction... superseded Imperial County's area plans...." SA/DEIS, p. C. 8-27. In essence, the SA/DEIS claims that the Project is consistent with the Area Plan because it will lead to the abolishment of it. Such a finding is contrary to the purposes of disclosing these inconsistencies, in conflict with Guidelines section 15125(d), and contrary to both CEQA and NEPA.

06-10

The SA/DEIS is also inadequate because it contains conflicting statements regarding whether or not there will be a significant Land Use impact. The Project does not comply with the site's zoning designation. The Executive Summary states that, even though the Project fails to comply with all applicable laws, ordinances, regulations, and statutes ("LORS"), nonetheless all land use impacts are less than significant under CEQA after mitigation. SA/DEIS, p. ES-17. Yet the Land Use discussion itself states that such impacts "would be significant and unavoidable." SA/DEIS, p. C.8-30; see also SA/DEIS, p. C.8-49 ("the inconsistency with the S-2 zoning designation is a significant and unavoidable impact under CEQA." These conflicting statements within the SA/DEIS must be resolved.

O6-10 Federal preemption of local plans occurs under the hierarchy of government powers. This comment refers to CEQA requirements which are the responsibility of the California Energy Commission, a State agency, and not the BLM, a Federal agency responsible for compliance with the National Environmental Policy Act and not CEQA. The BLM has no land use or other authority over lands in private ownership; those lands in and near the IVS project site are under the land use jurisdiction of Imperial County. Therefore, the characterization of the IVS project is correct with regard consistency. However, more properly stated, the proposed IVS project in consideration of the LORS does not create an inconsistency. Section 4.9, Land Use, in the FEIS identifies three unavoidable adverse impacts related to land use and recreational opportunities as well as cumulative impacts.

CEQA requires agencies to consider the environmental impacts of "the whole of [their] action" so as to ensure "that environmental considerations do not become submerged by chopping a large project into many little ones — each with a minimal potential impact on the environment — which cumulatively may have disastrous consequences." Guidelines § 15378(a); Bozung v. Local Agency Formation Com. (1975) 13 Cal.3d 283-84; see also Plan for Arcadia, Inc. v. City Council of Arcadia (1974) 42 Cal.App.3d 712, 726 (CEQA's requirements "cannot be avoided by chopping up proposed projects into bite-size pieces which, individually considered, might be found to have no significant effect on the environment or to be only ministerial").

06-15

NEPA also requires that connected actions be considered together in the same EIS. See 40 C.F.R. § 1508.25; Thomas v. Peterson, 753 F.24 T54, 758-759 (9th Cir. 1985) ("Thomas"). Connected actions are those that (1) "(a) ultomatically trigger" other actions potentially requiring EISs; (2) "cannot or will not proceed unless other actions are taken previously or simultaneously;" or (3) are "interdependent parts of a larger action and depend on the larger action for their justification." 40 C.F.R. § 1508.25. Courts commonly apply an "independent utility" test to "determine whether multiple actions are so connected as to mandate consideration in a single EIS." Great Basin Mine Watch v. Hankins, 456 F.3d 955, 969 (9th Cir. 2006). In applying this test, courts have consistently "held that approval of access roads across federal lands requires federal agencies to analyze impacts of the road as well as the activities for which the road is being constructed." Sierra Club v. US. Department of Energy, 255 F. Supp. 2d 1171, 1184 (D. Colo. 2002) (Sierra Club v. DOB) (holding that a road easement granted by the Department of Energy was connected for NEPA purposes to the mining activities it enabled); see also Thomas, 753 F.2d at 758-59 (holding that a road approved for construction by the Forest Service was connected to the timber sales that could not proceed without it).

06-15

Here, phase II of the Project is dependant on construction of the Sunrise Powerlink Project. SA/DEIS, p. B.1-19. The Sunrise Powerlink Project is currently under challenge in both state and federal court. Until Sunrise Powerlink is completed, this entire Project cannot proceed. Accordingly, "whole. . . action" would include both of these "connected" Projects, their environmental impacts should be considered in the same document. Guidelines § 153/8(a), 40 C.F.R. § 1508.25. Here, however, staff simple declined to "independently review th[e] related [Sunrise Powerlink] project." SA/DEIS, p. B.1-19. Because the SA/DEIS falls to include an assessment of the environmental impacts of the entirety of the Project, it violates both CEQA and NEPA.

O6-15 As discussed in Chapter 2.0, Alternatives Including the Proposed Action, in the FEIS, Phase II of the IVS project would require operation of the Sunrise Powerlink or provision of additional transmission capacity within the existing San Diego Gas and Electric ( SDG&E) system. The IVS project is not solely dependent on the Sunrise Powerlink project and inclusion of that facility in the IVS project description evaluated in the FEIS is not warranted

# D.5.10 O8 – Responses to Comments from the Backcountry Against Dumps (May 27, 2010)

### Alternative Drainage Avoidance:

- The Army Corps Least Environmentally Damaging Practicable Alternative analysis must be completed before the close of public comment and / or project approval so those decisions and proposed mitigation measures can be reviewed by the decision makers and the public.
- All washes should be avoided, they are nature's storm channels that serve multiple services and species.
- A hybrid of Alternative Figures 1 B & 1C should also be considered for a much reduced project size and degree of impacts to critical water ways and sensitive resources.
- I personally visited the project site on April 25th, in the company of other witnesses, and found flood debris lodged about 3 feet up in Smoke Trees in one of the many desert washes. There was obvious evidence of flooding in excess of 1 foot in many of the desert washes.
- This flood level evidence is contrary to testimony of the applicant witness Dr Chang where he stated that his modeling showed flood waters were not expected to exceed approximately 1 foot. When I approached Dr. Chang after his testimony to inform him our information, he just smilled and said "that's interesting".
- Those who know this desert, and others know, too, that desert storms can be unpredictable and devastating. Many of us have seen white caps on flood waters in local desert washes. It is awe inspiring and can be very dangerous.

**O8-6** 



Smoke Tree flood debris near top right of cane. Photo by Tom Budlong, taken on-site 4-25-10).

The photo below shows aerial view of flood damage to Ocotillo from Hurricane Kathleen in 1976 that took out sections of I-S and the railroad near Ocotillo. Sections of Ocotillo neighborhoods stand starkly vacant in the flood path. Ocotillo sits approximately 3 miles west of the project site. (photo source: http://www.news.edu/miles/miles/aeria/source/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sources/sites/flood/sites/sites/flood/sites/s



O8-6 This comment questioned the results of the Howard Chang hydrology analysis and is duly noted by the BLM. No response is necessary.

D-446

## SunCatcher questions / issues:

- CEQA / NEPA Document still shows the old SunCatcher design
- SunCatchers have new design which qualifies as new information at this late date. Even the
  photos show the old design which is now a misrepresentation.
- New design is just being tested in AZ with 60 new SunCatchers
- Suncatchers are now 5,000 pounds lighter: <a href="http://www.sandia.gov/news/resources/news-releases/news-suncatcher-power-system-unweiled-at-national-solar-thermal-test-facility-july-7-2009/">http://www.sandia.gov/news/resources/news-releases/news-suncatcher-power-system-unweiled-at-national-solar-thermal-test-facility-july-7-2009/</a>
- How will that impact their stability and function during high wind and violent weather events like the chubasco that impacted the proposed site and surrounding area in September 2009 and Hurricane Kathleen that struck the area in 1976?
- Do Suncatchers generate more noise or vibrations in certain weather conditions above and beyond the noise generated by the motors?
- Operation noise level was reported as 75 db by applicant witnesses at the May 24-25 hearings.
   This was compared to a passing car at 100ft. However, the baseline ambient noise levels on the site, away from the adjacent roadways, and passing vehicles, is much less.
- My visits to the site have been very quiet and enjoyable with minimal noise trespass throughout the majority of the site, unless one strays closer to I-8.
- What is the maximum wind / sand storm and / or seismic event that Suncatchers can survive intact?
- Where is the on-site weather station / anemometer that document the types of wind that the SunCather will need to tolerate?

O8-7 It is not unusual that design features of a project are modified and refined over time. For example, the SunCatcher features have been refined by the applicant but continue to function the same way as described in the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS). Because the project would be constructed of components nearly identical to those considered in the SA/DEIS and would function in the same way, the refinements would not be sufficient to trigger the need for additional analysis or recirculation of the environmental document.

As described in the SA/DEIS, during wind or sand storms, the SunCatchers will be in the down position to protect the mirrors and minimize the risk of damage to the SunCatchers themselves. This should not change substantially based on changes in the weight of the SunCatchers. Similarly, in very windy conditions, the SunCatchers will be in the down position and would not be expected to generate noise or vibration that would affect off site sensitive receptors.

Finally, it should be noted that no facility can be designed to withstand all wind or sand storm events or seismic events totally undamaged. Engineering and construction to

achieve 100 percent avoidance of any damage at all due to any possible event is unrealistic and would be prohibitively costly.

The existing and historic weather information used for the FEIS analysis is from the EI Centro Weather Station. There has also been an existing weather station on the IVS project site at the Imperial Valley Substation for over a year.

## Sunrise Powerlink is a "Connected Action" and must be included in review

- ES-39 states that the Sunrise Powlerink is required for Phase II.
- Project Overview Map (Supplemental Figure 1-3) does not show the Sunrise Powerlink alignment through the project even though this project was considered a "Connected Action" in the Sunrise Powerlink EIR/EIS
- D.5.2.1 Transmission System Engineering: Staff analysis states that under CEOA, the CEC must review "whole of the action". Since SES Solar Two/IV Solar relies on Sunrisc Powerlink, that should be considered as part of the "whole action".
- Under Transmission Line Safety and Nuisance, ES-39 erroneously states that "each line would traverse undisturbed desert land with no nearby residents...".
- The Surrise Powerlink traverses, public land including Cleveland National Forest, the McCain Valley Resource and Conservation Area and McCain Valley Recreation Area, private and conserved lands, and organic farmland.
- Sunrise Powerlink is the subject of unresolved CEQA & NEPA legal challenges.
- San Diego County has formally asked the PUC to reopen and amend the Sunrise CEQA document to address unsecured water sources and temporary construction and lay down yards that are in different places than reported in the ERIF/EIS and were not property analyzed.

- San Diego County staff has informed this author that they do not intend to issue permits for those uses on land under County jurisdiction until they are proven compliant with CEQA
- Congressman Filner sent a letter to the Secretary of Interior on April 13,2010 expressing his concerns with BLM feeling compelled to short circuit NEPA for reasons that are not in the public interest.
- Congressman Filner also expressed concern with David Hayes current position at Department of Interior and former employment as lobbyist for Sempra and SDG&E, and potential for undue pressure to approve these projects. See letter at: <a href="http://protectour.communities.org/wp-content/uploads/2009/05/13-apr-10\_congressman-bob-filner\_lt-to-doi-sec-salazar.pdf">http://protectour.communities.org/wp-content/uploads/2009/05/13-apr-10\_congressman-bob-filner\_lt-to-doi-sec-salazar.pdf</a>
- The PUC released the Sunrise Powerlink Project Modification Report (5-14-10) with public comment ending June 7. http://www.cpuc.ca.gov/environment/info/aspen/sunrise/sunrise.htm
- An agency memorandum will be prepared by CPUC and BLM to document the changes
  presented in the final PMR document and to determine whether additional CEQA/NEPA review
  is required.
- A determination will be made on the need to reopen the CEQA/NEPA process.
- The US Forest Service has not yet approved the Sunrise Powerlink route through the Cleveland National Forest.
- On May 15, 2010 the US Forest Service announced a 45-day comment period to determine if a Supplemental EIS is needed. <a href="http://www.fs.fed.us/r5/develand/projects/sunrise-nowerlink/index.shtml">http://www.fs.fed.us/r5/develand/projects/sunrise-nowerlink/index.shtml</a>

O8-10 The environmental review of the Sunrise Powerlink project by the BLM and California Public Utilities Commission (CPUC) is complete. SDG&E received a Certificate of Public Convenience and Necessity from the CPUC for the Sunrise Powerlink project. Therefore, the project is already approved. The Sunrise Powerlink is independent of the IVS project and will be built regardless of whether or not the IVS project is approved for implementation.

### Lack of need for project:

 The PUC's Assigned Administrative Law Judge proposed decision on Sunrise Powerlink denied the CPCN stating that

"The proposed decision denies San Diego Gas & Electric Company's (SDG&E) application for a certificate of public convenience and necessity (CPCN) to build the Sunrise Powerlink Transmission Project (Sunrise) for the following reasons:

- "It is not needed to meet SDG&E's renewable portfolio standard (RPS) obligation of 20% by 2010;
- Assuming a 20% RPS, it is not economic and will potentially generate significant rategaver costs:
- It will have many significant and unmitigable impacts on the environment; and
- Other alternatives will meet SDG&E's eventual reliability needs more economically and with fewer significant and unmitigable impacts on the environment." (http://docs.cpuc.ca.gov/efile/PD/93071.pdf)
- Sunrise FEIS/EIR selected the Environmentally Superior New In-Area All-Source Alternative: Description: One baseload and four peaking gas-fired power plants with fossil fuel fired distributed generation facilities (about 800 MW) plus San Diego County renewable generation (about 200MW).
- SCE has demonstrated that 200 MW of renewable energy can be achieved by using existing warehouse type rooftops. SDG&E can do the same.
- The BLM selected the so-called Environmentally Superior Southern Route which required a Plan Amendment to the Just revised Eastern San Diego County Resource Management Plan. They violated the Administrative Procedure Act by using the Sunrise EIR/EIS to amend that RMP.

O8-11 Refer to response to comment O8-10, above.

#### Flora / Fauna

 Fall surveys are required for full compliance. 2010 Fall bloom should be exceptional due to a wet year after numerous dry years. The Fall survey is now proposed to take place after public review which eliminates any review and comment on impacts and proposed mitigation. O8-19

08-11

**O8-11** 

- Any historic information for bloom after the 1976 Hurricane Kathleen should be incorporated since many desert plants can remain dormant unless and until the right amount of rain falls at the right time. See photo below of desert Prickly Poppy bloom after Hurricane Kathleen.
- Jim Andre, a rare plant expert and director of UC Riverside's Sweeney Granite Mountains Desert
  Research Center in the Mojave National Preserve, has stated 40 % of desert plants bloom in the
  fall.
- The presence of bighorn sheep on-site cannot be dismissed by stating they were flushed out by OHV activity, Flushed out from where? Wilderness and protected areas?
- · What does this say about BLM management abilities?
- Previous BLM plans for the area recognized the project site as bighorn habitat.
- The on-site presence of pregnant females during lambing season begs further investigation.



OB-19

- What are the potential impacts of having power collected from the SunCatchers to go through a 600 V underground power lines which apparently vill collect from the units leaving much of the area not only disturbed by roads, but also by the underground powerflow.
- What are the potential adverse impacts of this amount of cumulative disturbances, from
  multiple projects, to the soils used by burrowing small mammals and litards. This disturbance is
  in addition to the 27 miles of paved arterial roads, 14 miles of unpaved perimeter roads, and
  approximately 234 miles of unpaved access roads associated with the proposed IV Solar site
  (SA/DEIS ES-5) for a total of 275 miles of roads.
- · Cumulative impacts to bighorn sheep habitat and corridors
- Indirect and cumulative impacts associated with noise and vibrations that travel through the soil
  and air.
- We disagree with applicant expert's position that I-B represents a barrier for ITHL.

- We regularly see FTHL sitting on and crossing two lane paved roads. I-8 is two rows of two lanes with a break in the middle. There is nothing to stop or prevent FTHL from crossing.
- · Further destroying / fragmenting their habitat is totally unnecessary and should be rejected

08-19

O8-19 This comment questioned the conclusion in the SA/DEIS that Interstate 8 (I-8) functions as a barrier for FTHL, and stated that the commenter regularly observes FTHL crossing roads. Paved roads can attract FTHL after sunset if they are radiating more heat than natural substrates; however, crossing two heavily travelled two-lane sections of I-8 poses a substantial daunting challenge for FTHL and the BLM considers I-8 to function as a barrier to FTHL movements.

This comment asked about the effects of the disturbances associated with underground power lines. The impacts associated with underground power lines are construction impacts. The impacts from all construction activities associated with the project, including underground facilities, are evaluated throughout Section 4.0, Environmental Consequences, in the FEIS in the discussions related to construction impacts.

## Seismic activity / impacts need to be revised

to address 7.2 quake on Easter Sunday, 2010 and the historic 7.8 quake in 1892both on the Laguna Salada Fault. New maps show 7.5 to 8.0 maximum magnitude in the same fault area. This is new information.

- See this link regarding the release of the new map that shows the 50 new surface faults discovered. The graphic below was included in the linked LA Times story that ran on April 28.
   2010 <a href="http://www.fox5sandlega.com/newslam-sealifornis-faults-20100428.0.6209773.dastary.">https://www.fox5sandlega.com/newslam-sealifornis-faults-20100428.0.6209773.dastary.</a>
- The new USGS Uniform Earthquake Rupture Forceast map shows the estimates of the maximum magnitude of potential quakes on the known faults. It rates the fault systems that generated the 1892 and 2010 quakes, referenced above, at 7.5 to 8.0.
- One of the earthquake scientists interviewed reminded folks that the map's limitations include not showing most "blind thrust" faults, which produce quakes that don't break the surface. The magnitude 6.7 quake that struck Northridge in 1994 occurred on a blind thrust system that killed more than 70 people and caused about \$20 billion in damage.



Omission of 7.8 earthquake in 1892, with local ground fissures, rock slides, and impacts on hot springs is a major flaw in this Seismic Impact waiver request. The 1892 earthquake occurred on

O8-20

the same Laguna Salada fault that the 7.2 quake occurred after release of the DSEIS on Easter Sunday, April 4, 2010. This is new information.

- A recirculated SA/DEIS needs to address April 4, 2010 7.2 quake on the Laguna Salada fault
  which is known to be unpredictable with numerous historic seismic events recorded over
  several centuries. A 20 foot or so displacement in the Ocotillo area was reported from a
  previous quake.
- The photos below were released by Dr. Francisco Suarez Vidal to Dr. Victor M Ponce on April 28, 2010. They show the ground displacement at the <u>Laguna Salada Fault</u>. In Baja California, as a result of the April 4, 2010, 15:40 PDT earthquake with epicenter near Guadalupe Victoria, south of Mexicali.
- The photos are included in Dr. Ponce's comments on the proposed Campo Regional Landfill: http://comments.sdxu.edu./earthquake\_1004041340.html http://comments.dxu.edu.
- Preliminary field measurements by CICESE researchers have documented (a) a vertical displacement of 0.4 m, (b) a horizontal displacement of 2 m, and (c) a longitudinal length of fracture of loos to 100 km.



O8-20

O8-20 The analysis of potential seismic issues at the project site is not based on individual events such as the April 4, 2010 earthquake on the Laguna Salada fault. Earthquakes and earth movement are continuous in California as a result of its location at the meeting of two tectonic plates. It would not be possible to prepare any geological or

seismic analysis in California that includes every single seismic event because these events occur continuously. For example, before and since the April 4, 2010 earthquake, there were and have been hundreds or thousands of additional events in the same geographic area and likely generated on the same fault. As a result, seismic studies consider the potential for ground shaking and seismic surface rupture based on past records of seismic activity and the locations of known faults in relationship to a project site. Nonetheless, regardless of the occurrence of individual seismic events or the locations of known faults with past surface ruptures or blind faults with no evidence of surface rupture, all buildings and structures in California must be designed and constructed consistent with the 2007 (or more recent) California Building Standards Code (CBSC) in Title 24, California Code of Regulations, which includes specific codes for all aspects of building and structure design and construction including standards related to the potential for seismic shaking, liquefaction, local subsidence, and other soil conditions. Considering the April 4, 2010 earthquake on the Laguna Salada fault would not substantively change the analysis in the Final Environmental Impact Statement which clearly indicates that the site is subject to seismic shaking and possibly soil liquefaction and local subsidence or the project mitigation which clearly requires design and construction of the project be consistent with all applicable parts of the CBSC in Title 24. Therefore, because the analysis and conclusions would not change based on consideration of the April 4, 2010 earthquake, it is not necessary to revise the analysis to reflect that earthquake or to recirculate the environmental document.



- Table 1 of the Landmark Geotech investigation (8-3-09) Seeley Water Reclamation Facility, LCI Report No. LE09142, dated 8-13-09, shows a maximum7.0 magnitude quake on the Laguna Salada Fault System.
- This is outdated information since the 7.2 quake hit that fault on April 4, 2010. Land ruptures/fissures occurred in the Seeley area as a result of this recent quake, including J-8.
   Sections of Drew Road in Seeley is still closed
- Table 1 also shows an incorrect 7.0 1891 quake as the largest historic quake on that fault when the USGS reports a 7.8 quake on Feb 23 1892.

http://earthquake.usgs.gov/aarthquakes/states/events/1892\_02\_24.ohp http://www.enengy.ca.gov/sitingcases/solartwo/documents/applicant/2010-05-10\_Applicant\_Supplement\_to\_the\_AFC\_TN-56589\_odf

- Page 20 of the Phase I Environmental Site Assessment for the Seeley Waste Water Treatment Facility states that a "use of a treatment pand built on the SW corner of the property in 1989 was discontinued after one year due to a landslide into the New River and piping failure due to the landslide.
- This raises issues with seismic impacts and soil stability at the project site itself, the Seeley
  facility, and impacts to groundwater wells in Occilio which would be subject to collapse during
  a severe seismic event. Residents of Occilio informed us that they experienced some well
  problems/ impacts after the recent quake event.

O8-21 Refer to response to comment O8-20, above.

## Recreation resources / Impacts:

 The dismissal of impacts to Wilderness and recreation resources due to the availability of other similar resources does not acknowledge the undue burden placed on the small communities whose businesses rely on tourism traffic generated, by those specific areas, to survive. Tourists may go to much more distant areas to avoid the industrialized area altogether.

may go to much more distant areas to avoid the industrialized area altogether.
 There will be cumulative impacts to recreation from multiple renewable energy and transmission projects proposed for public lands in the area/region.

- Our families, and many others, currently use and enjoy the project site and surrounding public lands for a variety of recreation past times.
- The project area should remain Limited Use with public access and should be removed from any future development plans / proposals.
- O8-24 As discussed in Section 4.14, Special Designations, in the FEIS, there are no wilderness areas near or in the immediate vicinity of the project site. As a result, it is not expected that the IVS project would adversely impact the visitor experience at wilderness areas further from the project site. Section 4.12, Recreation, in the FEIS, acknowledges that the IVS project will disrupt a highly active recreational area and would adversely affect users of those recreational lands. The FEIS further acknowledges this as an unavoidable adverse impact of the IVS project and that the IVS project and other cumulative projects will result in an unavoidable cumulative adverse impacts on recreation resources.

#### Noise & Vibrations

may interfere with burrowing and other wildlife. OHV use next door is not 24/7. Most weekdays, nights, and all summer, the area is quiet.

Ecosystem Services have economic value.

Ecosystem Services and their economic value and place in land use planning:

A recent report published by Wild Connections is intended for use by the BLM and other agencies as a resource to more adequately represent the value of ecosystem services in land management planning such as the IV Solar/ Solar Two, the Surrise Powerlink, the ECO Substation, Tule Wind and Energia Sierra Juarez projects under current review. These critical ecosystem service values are generally ignored or vastly undervalued. Here is the Conclusion and Recommendations section of the Wild Connections report:

"In the past, ecosystem services were left out of the economic analyses when land use planning was conducted. There are likely two reosons for this, first, the economic models used were based on neodossical economic assumptions that gave little value to the environment and the services it provides; and second, ecosystems services were difficult to quantify economically. Over the last thirty years both of these reasons have been challenged and are no longer valid. Numerous studies point to the importance of ecosystem services for human survival and numerous studies have also been conducted to economically quantify the value of these services. This study has analyzed the problems inherent in the present economic models and has established conservative economic values for a valve range of ecosystem services. These

08-24

economic values have been opplied to the Pike San isobel National Forest as a demanstration that the value of these services can be established and therefore incorporated into the land use planning process. It is no longer possible ar prudent to ignore the enormous benefits ecosystems provide for humans.

- The following conclusions can be reached from the material presented in this paper.

  1. Traditional economic models used in land use planning are flowed and therefore their
- results should be interpreted with great caution.

  2. The economic value of ecosystem services has been ignored in the land use planning process.
- 3. Ecosystem services do have economic value.
- The ecanomic value of ecosystem services can be measured and is available in the professional literature (Appendix A).
- 5. The total economic value of ecasystem services is substantial (Tables 5 and 6) Recommendations:
- 1. Land use agencies must create new economic models.
- These models must deal with the flowed assumptions and statistical problems inherent in input/output models.
- 3. The new models must also include the economic value of ecosystem services.
- 4. Recursive models are necessary to assess the long term impact of land use change. Models that simply reflect the present, fail to anticipate the long term cansequences of lond use decisions.
- Appropriate negative multipliers must be established and used when they will accurately reflect the long term impacts of land use change.
- 6. Models that can result in economic values that are less than \$0 are necessary in order to show the possible impacts of land use change on ecosystem services and therefore show the true costs of losing and replocing those services.

The Importance of these recommendations cannot be underestimated. Unless the changes autlined above are incorporated in the land use planning process, ecanomic analyses conducted in the future will continue to be inaccurate. These recommendations are not only academically important, they are critical to the decision making process because if ecasystem services are ignored, human survival is compromised.\*

The full report is available in electronic format (PDF) at www.wildconnections.org/library.html

O8-25 Refer to response to comment O8-24, above.

# D.5.11 O9 – Responses to Comments from the California Unions for Reliable Energy (May 27, 2010)

elimination of the SWWTP outflow of freshwater into the New River which discharges into the Salton Sea is a potentially significant impact.

Reduction in flows to the Sea may also result in potentially significant impacts on air quality. According to the Salton Sea Authority, as inflows are reduced, the Sea's elevation drops and sediments become exposed. Es Because the Sea is shallow (comparable to a forty foot puddle 1/8 of an inch deep), it doesn't take much drop in elevation to expose a large amount of sediments. Thus, the proposal to eliminate the SWWTP freshwater flow into the New River which discharges into the Salton Sea may result in potentially significant air quality impacts that must be analyzed in a revised DEIS.

The Salton Sea National Wildlife Refuge was established in 1930 to preserve wintering habitat for waterfowl and other migratory birds. The SWWTP's proposed reduction in the flow of water to the Salton Sea may potentially increase the salinity in the sea, resulting in significant impacts to beneficial uses of the sea, potentially significant impacts to wildlife and/or take of state- and federally-protected species. These potentially significant impacts must also be analyzed in a revised DEIS.

In sum, eliminating the outflow from the SWWTF in order to provide water to the Project will reduce the freshwater flow into the New River. This may result in potentially significant impacts to the river, wetlands, the Salton Sea, biological resources, and air quality.

09-10

A hydrologic study and surveys for special-status species are planned or underway. Upgrades to the SWWTP are part of the Project and should have been studied in the DEIS. The DEIS fails to analyze these significant environmental impacts because it relies upon and incorporates a Mitigated Negative Declaration ("MND") that was drafted and circulated by the Seeley County Water District ("SCWD"). After the DEIS was released for public review, the SCWD abandoned the proposed MND, realizing belatedly that the MND failed to analyze many potentially significant environmental impacts. Two weeks after the DEIS was published, the BLM and Energy Commission prepared an appendix to the DEIS that was published on the Energy Commission website but was not published in the Federal Register or on the BLM website. The Appendix disclosed that the MND was not approved by the SCWD and that additional studies must be prepared, including surveys for a number of endangered and special status species and a study of the impacts of the facility on adjacent wetlands and the New River.

The BLM NEPA handbook instructs BLM to evaluate whether studying connected actions in a single NEPA document would improve the

quality of analysis and efficiency of the NEPA process, and provide a stronger basis for decision-making.<sup>21</sup> The inclusion of the modification to the SWWTP in the Project's DEIS will undoubtedly result in a more integrated, logical and efficient analysis of the direct, indirect and cumulative impacts of the Project. Moreover, the BLM is legally required under NEPA to study the protentially significant environmental impacts of the SWWTP modifications as a connected action to the Project in the DEIS. As such, the SWWTP modifications must be studied as direct, indirect and cumulative impacts of the Project in the DEIS.

09-10

O9-10 The proposed improvements and upgrades to the Seeley Wastewater Treatment Plant are being addressed in a separate Environmental Impact Report (EIR) being prepared under the requirements of the California Environmental Quality Act (CEQA) by the Seeley County Water District. That EIR will address the potential impacts, including potential growth inducing impacts, of those plant upgrades. Those improvements do not require action by the BLM and, therefore, are outside the purview of the BLM.

## B. SOIL AND WATER CONDITIONS IN THE REGIONAL WATERSHED

The Project is within the Salton Sea Watershed and soil and water conditions on the Project site directly affect this watershed. Soil and water impacts were identified and analyzed by independent expert hydrologists Dr. Chris Bowles and Chris Campbell. Their testimony is attached to this comment and their opinions are incorporated in the soil and water sections of this comment letter.

As California's largest lake, the Salton Sea supports a multitude of recreational uses and a National Wildlife Refuge and is a critical stop on the Pacific Flyway for migrating birds, including several state- and federal-listed endangered and threatened species. Since the Sea has no outlets, salts concentrate in it and thus the sea is dependent on the continued inflow of freshwater to support it. Currently, the Sea is 25 percent saltier than the ocean, with salinity increasing at approximately 1 percent per year.

The desert washes impacted by the Project provide critical ecological functions such as sediment transport and deposition, energy dissipation and groundwater recharge for the Salton Sea Transboundary Watershed. As explained by the EPA, these important services will be lost or degraded by the Project development. The DEIR failed to adequately describe the soil and water conditions on the Project in order to provide a baseline to evaluate the Project's impacts.

## a. Cryptobiotic Crusts

Notably, the DEIS failed to include any analysis of surface soils, including identification of the presence of cryptobiotic crusts on the Project site. It is highly likely that cryptobiotic crust is widespread across the site. The Cryptobiotic crust is a highly specialized community of cyanobacteria, mosses, and lichen and are prevalent in the project area. The living organisms present in the desert soils create a surface crust of soil particles bound together by organic material. The thickness of these crusts can reach up to 10 cm. The crusts are important members of the desert ecosystem and

contribute to the well-being of other plants by stabilizing sand and dirt, promoting moisture retention, and fixing atmospheric nitrogen. 

Because of their thin, fiberous nature, cryptobiotic soils are extremely fragile systems. Some species in the soil can recover within a few years of disturbance, but slow growing species may require more than a century to recover. 

Some species may require more than a century to recover.

Disruption of the crust will result in decreased organism diversity, soil nutrients, stability, and organic matter. <sup>13</sup> The crusts significantly aid infiltration of precipitation, and anthropogenic disturbance can dramatically increase surface runoff and increase the rate of soil loss by an order of magnitude. <sup>11</sup> Wind erosion is substantially more prevalent with disruption of the crust. Crusts that may remain intact downstream of the project site will inevitably be buried through windblown and water transported erosion. <sup>40</sup>

O9-14

The BLM must establish the extent of cryptobiotic crust in the affected environment in order to analyze the effect that elimination of this crust will have on the hydrology of the Project site. This information and analysis must also be disclosed to the public, and the Project's impacts on the regional watershed must be analyzed as required by NEPA.

O9-14 This comment stated that the environmental document failed to adequately analyze the soil and water conditions on the IVS project site to establish baseline data. The geology, hydrology, and biology sections of the Staff Assessment/Draft Environmental Impact Statement identify and describe the baseline conditions for soils and water on and in the vicinity of the IVS project site. Refer also to response to comment O9-40, below, for a discussion regarding potential project effects on the Salton Sea and to Section 4.18 for responses related to water resources.

### F. BURROWING OWLS ON PROJECT SITE

The burrowing owl is listed as a Bureau of Land Management Sensitive species. Burrowing owl nesting habitat consists of open areas with burrows. Habitats include dry open rolling hills, grasslands, fallow fields, sparsely vegetated desert scrub with gullies, washes, arroyos, and edges of human disturbed lands. <sup>55</sup> The Imperial Valley is regarded as a population stronghold for the burrowing owl, and it currently has one of the largest and most dense populations throughout the species 'range. <sup>56</sup>

The DEIS fails to provide reliable information on the presence and abundance of owls within the Project area. According to the DEIS, information on owl presence and abundance in the Project area was achieved through incidental observations. Protocol surveys (or any focused surveys) for burrowing owls were never conducted. By not requiring any surveys for burrowing owl, the public is denied any opportunity to understand the extent of important biological resources on the Project site.

09-22

O9-22 This comment raised concern about the lack of surveys for the western burrowing owl 
(Athene cunicularia var. hypugaea) in the SA/DEIS. The applicant conducted the 
western burrowing owl surveys pursuant to the California Burrowing Owl Consortium 
guidelines.

C. THE DEIS FAILED TO ANALYZE POTENTIALLY SIGNIFICANT IMPACTS TO GOLDEN EAGLE AND MAY NOT COMPLY WITH THE BALD AND GOLDEN EAGLE PROTECTION ACT

09-31

The USFWS requires a take permit to be issued for "take" of bald or golden eagles where the taking is associated with, but not the purpose of, the activity, and cannot be practicably avoided. Take includes causing a decrease in golden eagle productivity by substantially interfering with normal breeding, feeding, or sheltering behavior. The DEIS concludes the Imperial Valley Solar Project site provides suitable foraging habitat for golden eagles. According to the applicant's survey data, jackrabbits and ground squirrels (i.e., the preferred prey) are present on the Project site and appear to be relatively abundant. The DEIS further concludes the loss of foraging habitat for golden eagles may require a permit for take under the Bald and Golden Eagle Protection Act. Despite these conclusions, the DEIS lacks any discussion on the actions that will be taken to determine whether the Project will require mitigation and issuance of a take permit for impact to golden eagle foraging habitat. The DEIS lacks any information, or active the significance of Project impacts on golden eagles.

09-31

O9-31 This comment raised concern about the potential for the project to result in take of the golden eagle (Aquila chrysaetos). There are only five recorded observations of golden eagle in the Imperial Valley. Golden eagles likely occur to the west of the project site in the Coyote Mountains area. It is highly unlikely that golden eagles would nest on the project site. The probability of golden eagle flying over the project site is low. The site could provide low to moderate forage habitat for the golden eagle. Golden eagle has

not been observed on or over the project site. Implementation of the Imperial Valley Solar (IVS) project would not constitute take of the golden eagle and the Federal Bald and Golden Eagle Protection Act would, therefore, not be applicable to the IVS project.

## D. THE DEIS FAILED TO ANALYZE POTENTIALLY SIGNIFICANT IMPACTS TO COLORADO DESERT FRINGE-TOED LIZARD

The Applicant has indicated the Project site has suitable habitat for the FTHL, which is described as sparsely vegetated desert scrub areas with fine, wind-blown sand deposits and shifting sand substrate. Habitat for the Colorado Desert fringe-toed lizard (listed as BLM Sensitive and a California Species of Special Concern) is similar to that of the FTHL. It is described as "fine, loose, wind-blown sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, and sparse desert scrub." On According to the California Natural Diversity Database, there are several documented occurrences of Colorado Desert fringe-toed lizards within 10 miles of the Project site. Therefore, the DEIS must adequately disclose and analyze the Project's potentially significant impacts on the Colorado Desert fringe-toed lizard.

09-32

O9-32 This comment raised concern about the lack of analysis of the potential impacts of the IVS project on the fringe-toed lizard (*Uma inornata*). The project site is not within the historic range of the fringe-toed lizard, which is known from the Coachella Valley. The fringe-toed lizard was not known to occur in the Yuha Desert and, therefore, was not included in the impacts assessment.

#### d. Climate Change

The DEIS failed to consider the role that climate change may have in shaping the significance of the Project impacts on the hydrologic conditions on the Project site. Climate change can have an influential role in shaping the project's impacts on the environment in terms of hydrologic response and soil erosion. <sup>113</sup> Provided that intense summer storms are responsible for a majority of the runoff that occurs at the project site, the Nature Conservance would suggest that summer rainfall in southeastern California may increase by as much as 50% by 2080 in the summer, which could be accompanied by significant increases in rainfall intensity and erosivity (Angel et al., 2005). <sup>114</sup>

09-38

These significant increases in rainfall quantity, intensity, and erosivity would have a profound impact on the landscape, especially on the morphology of the washes where solar dishes are proposed, <sup>115</sup> The impacts to the landscape would, in turn, significantly impact the structural stability and flood preparedness of the solar dishes placed in the washes, and coupled with increased sedimentation from the solar arrays, subsequent and significant water quality impacts to downstream impaired water bodies would ensue.

Project design and best management practices must be analyzed in the DEIS to deal with these future changes in the climate.

09-38

O9-38 The comment asserts that "...summer rainfall in southeastern California may increase by as much as 50% by 2080..." There is no requirement for an environmental document to attempt to speculate on weather patterns 70 years in the future or to speculate or attempt to analyze the secondary effects of weather changes in the future on a proposed project. The FEIS analysis is based on known weather patterns and historical precipitation for the southern California desert. Sections 3.4 and 4.4 in the FEIS discuss climate change.

# D. THE DEIS FAILS TO DESCRIBE ENFORCEABLE MITIGATION FOR IMPACTS TO WESTERN BURROWING OWL

The project would result in permanent loss of 6,185 acres that is currently used by burrowing owls for nesting and foraging. Although habitat loss has been identified as one of the primary threats to California's burrowing owl population, and although the Project would contribute incrementally to this significant loss, the DEIS provides no mitigation for the Project's impacts to burrowing owl habitat, such as land acquisition. Further, the compensatory mitigation required for impacts to flat-tailed horned lizard habitat will not necessarily compensate for impacts to burrowing owls, because (a) compensatory mitigation for the FTHL may simply entail FTHL management actions (e.g., fencing, signage, habitat restoration) that would do very little to offset impacts to burrowing owls; and (b) the DEIS provides no mechanism for assuring compensatory mitigation will provide suitable habitat for burrowing owls. 126

Condition of Certification BIO-16 provides mitigation measures for Project impacts to burrowing owls. BIO-16 measure #1 requires the applicant to "[c]omplete a pre-construction survey for burrowing owls for any areas subject to disturbance from construction no less than 30 days prior to the start of initial ground disturbance activities. If burrowing owls are 09-46

present within 500 feet of the project site or linear facilities, then the CDFG burrowing owl guidelines (CDFG 1995) shall be implemented."

BIO-16 lacks certainty due to the failure to define "disturbance." Besides earth moving activities, burrowing owls may be disturbed by Project factors such as noise, night lighting, and altered hydrology. <sup>127</sup> The mitigation measure also needs to specify the areas where burrowing owl surveys are required. The mitigation measure lacks any performance standards, including the methods for conducting the pre-construction survey, the minimum level of effort required, the qualifications of the surveyor(s), and whether it will be permissible for the applicant to conduct burrowing owl surveys concurrent with other pre-construction survey activities.

09-46

Condition BIO-16's requirement to have the applicant implement CDFG burrowing owl guidelines if burrowing owls are present within 500 feet of the project site or linear facilities is unnecessarily vague and thus lacks feasibility. First, according to CDFG burrowing owl guidelines, a site should be assumed occupied if at least one burrowing owl has been observed occupying a burrow within the last three years. Because a burrowing owl was detected along the proposed transmission line within the last three years, the DEIS—by definition—requires the applicant to implement CDFG mitigation guidelines regardless of future survey results. As a result, the proposed condition permits an uncertain outcome for what CDFG defines as a certain impact. Second, if surveys are limited to areas exposed to ground disturbance, there will be no mechanism for obtaining information on owl presence within 500 feet of the project site or linear facilities.

O9-46 Refer to response to comment O9-22, above.

#### E. THE DEIS FAILS TO DESCRIBE ADEQUATE MITIGATION FOR IMPACTS TO NESTING BIRDS

According to the DEIS, if an active nest is discovered during the preconstruction surveys, a buffer zone would be established around the nest. Scientific literature does not support the ability of a pre-construction nesting bird survey to serve as an effective technique in protecting all (or even most) nesting birds from take. <sup>128</sup> Rather, research indicates nest finding is labor intensive and can be extremely difficult due to the tendency of many species to construct well-concealed or camouflaged nests. <sup>129</sup> As a result, most studies that involve locating bird nests employ a variety of search techniques. <sup>130</sup> These include flushing an adult from the nest, watching parental behavior

09-47

(e.g., carrying nest material or food), and systematically searching nesting substrates [3]

Moreover, there have not been any studies that have attempted to quantify the effort required to locate all bird nests within an area. This lack of information, in conjunction with imperfect nest detection rates, makes it impossible to evaluate how effective pre-construction nest surveys are in preventing direct impacts to nesting birds. <sup>132</sup> However, knowledge that nest detection is difficult and labor intensive suggests two pre-construction surveys are inadequate for large project areas. <sup>133</sup> As a result of data gaps, the DEIS has no basis to conclude the proposed pre-construction nest surveys will protect desert nesting birds from direct project impacts.

09-4

O9-47 This comment raises concerns that the adequacy of pre-construction surveys for nesting birds is not scientifically supported and would not prevent impacts to nesting birds. The intent of pre-construction nesting surveys is to identify all active nests within the survey area to avoid direct impacts. The use of accepted techniques and qualified biologists will be used to avoid and minimize project effects to nesting birds to the greatest extent feasible and no nesting birds will be intentionally taken.

# D.5.12 O10 – Responses to Comments from the California Native Plant Society (May 27, 2010)

Mirror Washing: According the Applicant, all 30,000 Suncatchers' mirrors will be washed periodically with a dilute biodegradable soap. Biodegradable does not equate to non-toxic and although the applicant has stated that it is likely that the wash water and soap will not reach the soil and that the soap will biodegrade, no data or studies have been submitted to support this claim. The soap has not been identified nor has any material safety data been provided. While it may be possible that the wash water will not reach the ground during mirror washing activities, we feel the assumption that the soap will biodegrade before causing harm is false. The pan evaporation rate at the project site is an estimated 140 inches per year. The applicant provided no evidence that the soap will actually biodegrade in such a dry environment and it might be entirely possible that the soap will accumulate on the mirrors, un-degraded, until a storm event provides enough water to wash the soap from the mirrors and onto the ground, as well as onto any cryptobiotic crust and or plants beneath the mirrors. Soaps by nature are antibacterial and cryptobiotic crusts at the project site are expected to contain bacterial components. Soil crusts are only metabolically active when wet.

010-3

We feel that the analysis of impacts from mirror washing activities are inadequate and additional analysis should be conducted.

O10-3 The on-site treated water will meet all water requirements and will be collected in a sealed basin. Section 4.17, Hydrology, Water Use, and Water Quality, in the FEIS for the discussion of waste water treatment and requirements for the Build Alternatives.

Dust Suppression: The Imperial Valley Air Pollution Control District (IVAPCD) Rule 804, Open Areas, requires rural open areas of 3.0 acres and contains at least 1,000 square feet of disturbed area to have a stabilized surface. The applicant plans on using dust suppressants to control fugitive dust. However, no information has been provided as to the specific suppressant to be used. Some suppressants are hygroscopic; they use moisture to help bind dust particles, which inhibits fugitive dust. If the dust suppressant that the Applicant intends to use is a hygroscopic material and since the project site has a pan evaporation rate of 140 inches per year, the Applicant has not shown any evidence that hygroscopic suppressants will be effective at the project site.

010-6

We believe that additional analysis of dust suppression materials and methods should be conducted, including identification of dust suppression materials, so that impacts to onsite and offsite plant communities are known.

O10-6 The fugitive dust control measure provided in Section 4.2, Air Quality, in the FEIS identifies Soiltac™ or a product with same or better performance as the chemical dust suppressant proposed to be used. Soiltac™ is a copolymer soil stabilizer.

011-1

## D.5.13 011 – Responses to Comments from the BLM California Desert District Advisory Council (April 1, 2010)

Dear California Energy Commission,

I am attempting to participate in the public process surrounding the Imperial Valley Solar project (formerly SES Solar Two).

I believe I'm not alone in the opinion that the single most important document for this project (or any other renewable energy project, for that matter) is a clear map of the site.

This project is entering the all-important public comment phase, yet the project's Documents Page on the CEC Siting Cases website still does not have a simple project map — sec: http://www.mergy.ca.gov/siting/cases/solertwo/documents/index.html

I'm certain that the Commission also believes in the importance of having a project map that is easily accessible to the public, because the above Documents page template prominently features a tab for "Figures & Maps". Yet, for the Imperial Valley Solar project, there is none yet available.

How can a proposal for a project this large in size not have a site map readily available during the public comment period?

Sadly, even the 1500+ page Staff Assessment and DEIS and Draft CDCA Plan Amendment document does not have a map that dearly illustrates the potential impacts to lands, activities, and route network that would be dispisced or climinated by the project — despite over 250 references to the word "map" in the document.

I would greatly appreciate that more attention be paid to providing clear site maps to the public so we can better assess the impacts of projects such as Imperial Valley Solar.

Thank you for your kind consideration of my comments as we move forward during these exciting and pivotal times.

O11-1 Figures 1 through 4 were added to CEC Website and the SA/DEIS provided figures at the end of the alternatives and cumulative projects discussions. These figures were included in the SA/DEIS from the time of its posting on the CEC website at the beginning of the public review period for the SA/DEIS in February 2010.

P2-1

## D.5.14 P2 - Responses to Comments from Anita Nicklen (May 28, 2010)

I wanted to inform you that I submitted my comments, but it seems that there is problem with this email that I used, can you please let me know what to do to make sure the BLM gets them. By the way, I sent the same email to you, I don't know if you received it. Thanks. anita caivspp@blm.org

Technical details of permanent failure:

Google tried to deliver your message, but it was rejected by the recipient domain. We recommend contacting the other email provider for further information about the cause of this error. The error that the other server returned was: 550 550 ... Relaying Denied. Please check mail before sending. (state 14).

ocultar detalles 26 may (1 día antes)

This email was received by the BLM El Centro Field Office when Ms. Nicklen P2-1 resubmitted it as shown on the copy of her email transmittal dated 5/28/10 and as acknowledged by the response from Ms. Simmons of the BLM in her email to Ms. Nicklen.

## D.5.15 P7 – Responses to Comments from Brendan Hughes (May 17, 2010)

Also, a CDCA plan amendment should be made to place this area off-limits to development.

P7-2

P7-2 Three No Action Alternatives were analyzed in detail in the SA/DEIS and the FEIS. A ban on development in the California Desert Conservation Area (CDCA) would be counter to the mandates for the BLM to accommodate renewable energy project on BLM managed lands. As noted in the project description in the SA/DEIS and the FEIS, the Build Alternatives would all require an amendment to the CDCA Plan (1980, as amended) to allow for a solar project on the project site. This type of amendment is consistent with the CDCA Plan and the overall process for ensuring consistency between the CDCA Plan and its protections and guidance for managing those lands, and lands uses proposed on BLM managed lands.

## D.5.16 P10 – Responses to Comments from Denis Trafecanty (No Date)

8. As I indicated in my public comments on May 24<sup>th</sup>, there is plenty of disturbed land about 80 miles west of El Centro in San Diego. Southern California Edison has found this out in Riverside and San Bernardino counties. It's called "In Basin Renewables and Distributed Generation". Recently when an issue came up regarding building power lines over public lands in a Senate Appropriations Committee meeting, Senator Alexander from Tennessee stated that we aren't

P10-8

P10-8 Other renewable energy projects are being pursued in eastern San Diego independently of the proposed IVS project.

## D.5.17 P11 – Responses to Comments from Edie Harmon (May 26, 2010)

3. I am concerned that the project applicant is rushing consideration for this process, with the end result that the public feels that it is being inadequate time to review the various aspects of the project and being left only with information from the project applicant without enough time for staff input from CEC or BLM before the public is expected to submit comments. In reviewing CEQA and NEPA documents for about 30 years, I have never before seen such a chaotic and time pressured process, or reviewed any project which would so irreparably alter the surface of such a large areas. There have been times during the workshops and even during parts of the evidentiary hearings that it seemed as if decisions have been already made and public input intended to be ignored. Not a good perception for members of the public who have attended most if not all the public participation opportunities in Imperial County.



P11-2 The SA/DEIS was released for public review for a 90-day period. While the standard review period is usually 45 days, because of the technical complexity of the project, the comment period was longer than the minimum required.

#### Obtaining and analyzing information takes time and often cannot be rushed

- 14. Changing project components and piecemeating review by withholding important information and analysis until after public comment is contrary to the intent of CEQA and NEPA. The public should not be forced to conduct its own research to ferret out information to analyze the accuracy and/or reliability of information provided in the last weeks before comments are due. I have decades of documents related to groundwater use and I have internet access to the very latest monitoring data from USGS (as does the applicant), but I am not paid to do an environmental analysis that should have provided more than outdated and inaccurate information to the CEC and BLM.
- 15. Could the CEC or BLM staff ever have found some of the information that I have provided, or would they even have known that such information was available and should be considered? Should staff for BLM, CEC or its hopefully 3<sup>rd</sup> party consultants on topics other than cultural resources been required to ferret out essential information withheld by the applicant? After more than 30 years of reviewing information on groundwater I can see how woefully inadequate and erroneous some of the information provided by the applicant was, but that leaves me wondering about the adequacy and accuracy of information on other topics. Rushing the review to meet the applicant's funding motivated deadlines could leave the public with a monument to ill advised project approvals. And located adjacent to an Interstate, it would be a lasting monument to flaws in the permitting and approvals processes. Any project requiring 6,500 acres most of it public lands with majority of public financing must take longer than what is customary for CEQA and/or NEPA exview.

P11-8

P11-8

P11-8 Refer to response to comment P11-2, above.

27. The BLM lands are "Limited use" lands, in part to restrict vehicle travel to the approved routes of travel. This designation was made after the initial portrayal of these lands as the "Plaster City Area of Critical Environmental Concern" (ACEC) in the 1980 BLM Draft EIS for the California Desert Conservation Area (CDCA) to protect what in 1980 was known to be an extremely important area for prehistoric cultural resources, cremation sites and Native American values. It is my understanding that the ACEC designation as an ACEC for the entire project area was not included in the final determination or Record of Decision (ROD), in part because identification of an area with such easy access near lands identified for OHZ activity would have increased the likelihood of damage and vandalism if the cultural resource values were known. (Conversations with many BLM staff locally, and BLM staff involved in the Section 106 consultation with Native American Tribes.) I am participating in the consultation process.)

P11-15

P11-15 Previous decisions regarding the boundaries of Areas of Environmental Concern (ACECs) are not relevant to the IVS project because there are no ACECs on or in the immediate vicinity of the IVS project site.

#### Alternatives

45. SA/DEIS fails as an informational document because the Alternatives discussion really only considers variations in the size and placement of SunCatcher units on the site under NEPA of at off site locations under CEQA in addition to the NP Action/No Project Alternative. See Sections starting with B 2.6. There was no consideration of alternative measures or technologies recommended by the public as measures which could accomplish the energy and GHG emissions goals of the proposed project. CEQA and NEPA provide opportunities for considering alternative measures, solutions, or locations to solve a problem even if they are not part of the project as described by a project applicant.

P11-25

- 46. Here Alternatives analysis other than the No Action alternatives seem to be driven by the profit motives of the project applicant. The SA/DEIS Alternatives discussion is from the perspective of applicant financial motives, when there must be some analysis of what the same amount of taxpayer funding could accomplish if the same amount of funding were to be made available for community based solutions which would reduce electrical demands on the system.
- 47. Please add an analysis of public generated recommendations for alternatives to the proposed industrial scale privatization of public lands to solve the energy and emissions problems.
- 48. And please add to the analysis the savings in fossil fuels that will accrue when the speed limit is reduced to 55 mph as under President Carter. Surely there is abundant data indicating the success of that effort in the past.
- P11-25 The alternatives considered in the FEIS are based on the BLM project purpose and need. While the reduction of greenhouse gas (GHG) emissions is a benefit of renewable energy projects, it is not part of the BLM purpose and need. Therefore, alternatives specifically intended to result in GHG reductions or fossil fuel consumption reductions were not considered as alternatives in the FEIS evaluation.

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## **D.6 Responses Without Graphical Interface Comments**

This section contains the text from Section D.4, Common Responses, without the graphical interface inserts of individual comments.

#### D.6.1 Common Responses

A number of the comments received on the IVS project and the DEIS discussed the same issues or environmental concerns. Rather than repeat responses over and over again, Common Responses were prepared that address those comments, and the responses to those comments refer the reader to the applicable Common Response.

In addition, some comments raised issues that are not environmental issues within the context of the National Environmental Policy Act (NEPA) or are outside the authority and jurisdiction of the BLM. Consistent with requirements of NEPA, the BLM has only addressed comments that raise substantive environmental issues under NEPA. However, all the comments received on the DEIS are included in this appendix.

The Common Responses are listed briefly below and are provided in full in the following sections:

- Section D.4.1, Non-NEPA/BLM Issues
- Section D.4.2, Project Alternatives
- Section D.4.3, Purpose and Need
- Section D.4.4, Cumulative Impacts
- Section D.4.5, California Desert Conservation Area Plan
- · Section D.4.6, Air Quality
- Section D.4.7, Biological Resources
- Section D4.8. Climate Change
- · Section D.4.9, Cultural Resources

- Section D.4.10, Public Health and Safety and Hazardous Materials
- Section D.4.11, Bonds Required of the Applicant
- Section D.4.12. Visual Resources
- Section D.4.13. Water Resources
- Section D.4.14, NEPA Process and Issues
- Section D.4.15, CEC Process
- Section D.4.16, Determination of NEPA Adequacy

Each of those sections lists the unique letter/number code for each comment for which the common response applies.

The following sections contain:

- A list of the comments received on the SA/DEIS related to the topic or environmental parameter noted in the section title (such as air quality or biological resources)
- · The language of each of those comments, from the written comment letters/emails
- · The common response that addresses the issue or issues raised in those comments

### D.6.1.1 Non-NEPA/BLM Issues

The following comments do not raise issues under the National Environmental Policy Act (NEPA) or that are outside the authority of the United States Bureau of Land Management (BLM).

Comments: NA1-3, NA1-4, NA2-1, S1-1, S1-6, L1-1, L2-12, U1-1, O1-1, O1-2, O1-3, O1-5, O1-6, O1-7, O1-13, O1-14, O1-15, O1-16, O2-1, O2-21, O2-36, O2-38, O2-40, O2-42, O4-1, O4-2, O4-7, O6-17, O7-1, O9-1, P3-1, P4-1, and P6-1.

Response: These comments do not raise environmental issues under the National Environmental Policy Act (NEPA), provide general comments or statements without raising a specific environmental question, and/or represent an opinion of the commenter that does not raise issues under NEPA. In compliance with NEPA, the BLM prepared a Final Environmental Impact Statement (FEIS) and that FEIS will be available to the public for 30 days. After publication of the FEIS and after consideration of the comments received on the SA/DEIS, including comments regarding the IVS project, possible BLM actions related to a right-of-way grant or an amendment to the California Desert Conservation Area Plan (CDCA Plan, 1980, as amended), or environmental issues, the BLM may select an alternative and set forth its approval in a Record of Decision (23 Code of Federal Regulations [CFR] 771.127) along with a summary of the adverse impacts of the project and avoidance, minimization, and mitigation measures incorporated into the Agency Preferred Alternative to complete the environmental process under NEPA.

## D.6.1.2 Project Alternatives

These comments raised questions regarding the description of the Imperial Valley Solar (IVS) project, the alternatives to the project, and other possible alternatives for consideration. This section responds to those questions and discusses and clarifies issues concerning the project and the alternatives to the project evaluated in the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) and the Final Environmental Impact Statement (FEIS). Responses to comments on the purpose and need for the project are discussed later in Section D.4.3, Purpose and Need.

Comments: F1-6, F2-1, F2-2, F2-3, F2-7, F2-14, F2-16, F2-39, F2-40, NA1-2, S2-2, O1-11, O1-15, O1-16, O2-17, O2-41, O3-3, O4-2, O6-13, O6-14, O9-50, P1-1, P7-7, P10-6, O1-8, O1-12, O2-2, O2-3, O2-5, O2-9, O2-10, O6-2, and P11-25.

Response: The responses to the questions and comments related to the project alternatives are provided in the following sections.

## Scope and Range of Alternatives Considered

For an adequate NEPA analysis, for "...the alternatives to be considered, the emphasis is on what is 'reasonable' rather than on whether the proponent or applicant likes or is itself capable of implementing an alternative." (United States Bureau of Land Management [BLM] *National Environmental Policy Act Handbook H-1790-1* [January 30, 2008]). In order to establish the reasonable range of alternatives to be considered, the defined project purpose and need functions as the first and most important screening tool. For the project, the applicant's purpose is to implement a profitable solar energy-providing enterprise. The BLM's purpose for the project is to specifically respond to Imperial Valley Solar, LLC's application under Title V of the Federal Land Policy and Management Act (FLPMA; 43 United States Code [USC] 1701) for a right-of-way (ROW) grant to construct, operate, maintain, and decommission a solar energy generation facility on public lands in compliance with FLPMA, BLM right-of-way regulations, and other

applicable Federal laws. The United States Army Corps of Engineers (Corps) and the California Energy Commission (CEC) also have agency specific purpose and need statements for the project.

For BLM, the range of alternatives is based on the applicant's proposed project, alternatives that would reduce or avoid adverse impacts of the applicant's project, appropriate No Action Alternatives. The alternatives considered by the BLM must involve an action on the part of the BLM. For this project, those actions are to approve or disapprove a ROW grant for the use of the project site for the proposed project and to amend or not amend the California Desert Conservation Area Plan (CDCA Plan, 1980 as amended) to allow or not allow solar on the IVS project site. Some of the comments on the SA/DEIS suggested the BLM should be proactive about the placement of these types of facilities on BLM jurisdictional lands and that lands outside the California desert should be considered for the IVS project. However, the BLM's role in managing its lands includes facilitating land uses on those lands while appropriately balancing and responding to multiple interests concerning Federal mandates, collaborating agencies' directives', and BLM's own interests. As a result, the alternatives considered in the SA/DEIS and the FEIS focus on alternatives which would require an action by the BLM and which respond to the specific application for a ROW grant received by the BLM for the IVS project.

#### **Agency Preferred Alternative**

The BLM must identify the Agency Preferred Alternative no later than as part of the Record of Decision (ROD) and potentially as early as in the DEIS. The BLM did not identify an Agency Preferred Alternative in the SA/DEIS but has identified the Agency Preferred Alternative in the FEIS. The 709 MW Alternative is the Agency Preferred Alternative. The 709 MW Alternative is the IVS project (750 MW) with modifications. Those modifications are specifically to remove SunCatchers from within certain drainages on the site and to move the Main Services Complex out of drainages. The Agency Preferred Alternative also includes four applicant proposed modifications that are also included in all the other Build Alternatives. Those modifications, which were incorporated in the Build Alternatives after the SA/DEIS was published, were minor realignments of the transmission line and the water line, changes in the hydrogen storage system on the site, and use of an alternative water source (a private off site water well) during construction and initial operations. The Agency Preferred Alternative, the other Build Alternatives with the applicant-proposed modifications, and the No Action Alternatives evaluated in the FEIS are described in detail in Chapter 2, Alternatives Including the Proposed Action, in the FEIS.

## **Alternatives Evaluation and Rejection**

The SA/DEIS included a substantial discussion regarding alternatives which were considered but not carried forward for detailed evaluation in the SA/DEIS. The alternatives considered and the reasons why they were not carried forward are described in detail in Section 2.8.3, Other Alternatives Considered but Eliminated from Detailed Analysis, in the FEIS and are described briefly below.

#### Alternative Sites

Several comments on the SA/DEIS suggested that alternative sites for the project be considered, in particular sites that are closer to urban areas. The SA/DEIS considered three alternative sites for the project: the Mesquite Lake, Agricultural Lands and South of Highway 98 Alternatives. Section 2.3.8 details why those alternative sites were not carried forward for detailed analysis. In addition, it is important to note that those three sites are not on BLM managed lands and, therefore, would require no action by the BLM. As a result, the BLM did not consider those three sites in the SA/DEIS or in the FEIS under the requirements of NEPA. Those sites were assessed in the SA/DEIS under the requirements of CEQA only.

Additional sites closer to urban areas or on previously disturbed lands were not considered in the SA/DEIS because the consideration of the three alternative sites described above was adequate in identifying and considering alternative sites. Alternative sites on other BLM managed lands were not considered because the BLM is responding to the specific individual application for the specific parcel identified in the applicant's ROW grant application. In addition, there are a very large number of other renewable energy projects for which applications for the use of BLM-managed lands have been submitted to the BLM. As a result, other BLM-managed lands in the general area of the project site are already subject to consideration of applications for other projects and, therefore, would not be considered by the BLM to be available for alternative projects until those applications are considered and either approved or denied by the BLM. Finally, many of the areas that have previously been disturbed or are closer to urban areas are not within the jurisdiction of the BLM and, therefore, would require no action by the BLM.

#### Alternative Strategies

Two alternative energy production strategies were suggested in the comment letters: promoting energy conservation through education and fossil fuel consumption reduction through lower speed limits. While both of these could result in a decrease in demand for electricity and fossil fuels, the reduction amount is unpredictable because both strategies are based on assumptions of behavioral change. As a result, there is no way to quantify these strategies. These strategies

are also outside the jurisdiction and authority of the BLM. Therefore, because these strategies do not meet the BLM's purpose and need regarding renewable energy on BLM-managed lands and they are outside the jurisdiction and authority of the BLM, they are not considered viable alternatives to the project.

Several comments noted that the SunCatcher technology proposed for the IVS project is a relatively new technology. New technologies are allowed in renewable energy projects on BLM managed lands. The demand for renewable energy across the globe is requiring advancements in the field. Therefore, the IVS project would not be the only renewable energy project benefitting from recent technological advancements.

#### Suggested Alternatives

Other alternatives were suggested in the comment letters. One proposed avoidance of the Juan Bautista de Anza National Historic Trail (Anza Trail) corridor and the other proposed a jurisdictional waters avoidance alternative. The Anza Trail corridor is extensive across southern California and its actual alignment is uncertain in many areas, including on and in the vicinity of the IVS project site. To entirely avoid the inferred alignment of the Anza Trail Corridor, the IVS project would likely need to be moved completely away from the project vicinity. The 300 MW Alternative evaluated in the SA/DEIS and the FEIS moves the project features further away from the inferred alignment of the Anza Trail Corridor on the IVS project site. Several alternatives already considered in the SA/DEIS avoid many of the major and minor drainages on the project site. These include the 300 MW Alternative, Drainage Avoidance # 1 Alternative, and Drainage Avoidance #2 Alternative. In addition, all three No Action Alternatives evaluated in the SA/DEIS and the FEIS would avoid impacts to the inferred alignment of the Anza Trail corridor and all the drainages on the site.

It should be noted that the Agency Preferred Alternative includes avoidance of many of the major drainages on the project site.

Another suggestion was to consider distributed solar technology. However, that technology was already considered in the SA/DEIS and FEIS, but was rejected as shown in this text from the SA/DEIS: "The conclusion of this section is that, while it will very likely be possible to achieve 750 MW of distributed solar energy over the coming years, the very limited numbers of existing facilities make it difficult to conclude with confidence that it will happen within the timeframe required for the IVS project. As a result, this technology is eliminated from detailed analysis in this SA/DEIS." In addition, the distributed solar technology is dependent on many variables outside the control and authority of the BLM. Therefore, given the directive for the BLM to implement substantial renewable energy projects on BLM managed lands by 2015, this

technology alternative was not carried forward for detailed analysis in the SA/DEIS and the FEIS.

In June 2009, the United States Department of Energy (DOE) Solar Energy Technologies Program initiated a Solar Vision Study (refer to Chapter 9, References, in the FEIS). That study is guided by the following goals:

- To evaluate the technical, economic, and environmental feasibility of meeting or offsetting 10 to 20 percent of electricity demand from solar energy technologies by 2030
- To identify the technology research, development, demonstration, and deployment and policy options necessary to achieve the first goal

During the past year, the study was conducted through a collaborative process, engaging a broad mix of perspectives from the private sector, universities, national laboratories, not-for-profits, and state and local interests. The primary technologies examined in that report are solar photovoltaics, concentrating solar power, and solar heating and cooling technologies.

Exploring high solar penetration cases for the United States grid will help identify synergies, constraints, and operational issues that analyses of incremental changes may miss. It also allows exploration of the resource, technology, materials, finance, and other factors that may constrain large-scale deployment of solar technologies in the longer-term future, especially beyond 2030. In addition, the Solar Vision Study is providing information for inclusion in and is being conducted in coordination with the DOE's Renewable Electricity Futures (REF) Study. The REF Study is exploring the potential for meeting 60 to 80 percent of the grid's power requirements by 2050 through a mix of renewable energy technologies. That study, which will be finalized soon after anticipated release of the Imperial Valley FEIS, underscores the need for both distributed and centralized solar power generation facilities in the United States in order to achieve the identified renewable energy goals.

#### D.6.1.3 Purpose and Need

These comments requested that the purpose and need be broadened and that additional alternatives be identified based on the broader purpose and need.

Comments: F2-38, O3-2, O4-8, O6-2, P11-21, and P11-23

**Response:** The responses to the questions and comments related to the project purpose and need are provided in the following sections.

#### **Broader Purpose and Need**

These comments requested that the project purpose be substantially expanded to address more broad and less specific purposes in order to allow for consideration of a broader range of alternatives. The purpose and need for the project provided Chapter 1.0, Introduction and Purpose and Need, in the Final Environmental impact Statement (FEIS) is based on two key considerations:

- The potential action the BLM could or would take on the specific project, the Imperial Valley Solar (IVS) project
- The response of the BLM in meeting specific directives regarding the implementation of renewable energy projects on Federally managed lands

Clearly, the primary action that BLM is considering is related to responding to a specific right-of-way (ROW) grant application from the project applicant to construct and operate a specific solar project on a specific site managed by the BLM. As a result, the BLM determined that a key purpose of this project was to determine whether to approve, approve with conditions, or deny that ROW application for the 750 megawatt (MW) IVS project. In addition, the BLM considered several other Build Alternatives on the same site and three No Action Alternatives as described in detail in Chapter 2.0, Alternatives Including the Proposed Action, in the FEIS.

The suggestion that the project purpose should be expanded to "...focus on the need to generate...greater amounts of electrical energy from renewable energy sources so that dependency on carbon based fuels is reduced..." is outside the purview of the BLM. The need for increased energy from renewable sources is not the responsibility of the BLM. However, the BLM can respond, within the context of specific directives under which it operates, to those needs by considering ROW grant applications for projects that would produce renewable energy on Federally managed lands. As a result, the BLM purpose for the IVS project responds in part to specific directives related to renewable energy production:

- Executive Order 13212 (May 18, 2001) which mandates that Federal agencies act
  expediently and in a manner consistent with applicable laws to increase the
  "...production and transmission of energy in a safe and environmentally sound
  manner."
- The Energy Policy Act, which requires the Department of the Interior (BLM's parent agency) to approve at least 10,000 MW of renewable energy on public lands by 2015.

 Secretarial Order 3285 (March 11, 2009) which "...establishes the development of renewable energy as a priority for the Department of the Interior..."

As noted above, these directives give the BLM the authority to act expediently in increasing the production of renewable energy within the bounds of its other authorities regarding the management of Federal lands. The BLM is not in the business of developing and operating energy production facilities; its responsibilities are to consider and grant (or deny) ROW to any qualified individual, business, or government entity and to direct and control the use of rights-of-way on public land in a manner that:

- Protects the natural resources associated with public lands and adjacent lands, whether private or administered by a government entity;
- · Prevents unnecessary or undue degradation to public lands;
- Promotes the use of rights-of-way in common considering engineering and technological compatibility, national security, and land use plans; and
- Coordinates, to the fullest extent possible, all BLM actions under the regulations in this part with state and local governments, interested individuals and appropriate quasi-public entities.

As directed by Secretarial Order 3285, the BLM has identified renewable energy projects on Federally managed lands as a priority throughout the lands it manages. As a result, the BLM is considering ROW grants for various renewable energy projects throughout California and other western states. Each of these projects is considered by the BLM on its own merits and with consideration of the impacts of each specific project on a specific site. Therefore, the purpose and need for each project, including the IVS project, are specific to each project within the broader scope of the directives prioritizing renewable energy development on Federally managed lands. Further, the FEIS does consider other possible energy projects in the cumulative impacts analyses provided in Chapter 4.0, Environmental Consequences.

The BLM believes that the purpose and need for the IVS project, as discussed in Section 1.0 in the FEIS, is consistent with the directives described above and the requirements of Title V of the Federal Land Policy and Management Act (FLPMA; 43 United States Code [USC] 1701) and satisfies the requirements of the National Environmental Policy Act (NEPA). Therefore, the BLM purpose and need for this project were not revised in response to these comments.

One comment related to whether the reduction of greenhouse gases (GHGs) is a goal and, if so, what the effects of other energy conservation or generation options (speed limit reductions, use of rooftop photovoltaic) would be related to GHG. The reduction of greenhouse gas is not a

specific goal or purpose of the project. However, GHG would be reduced as a result of the Build Alternatives as discussed in Section 4.4, Climate Change, in the FEIS. However, that analysis does not compare the reductions of GHG under the IVS project with possible reductions from other energy conservation generation options as that type of analysis is outside the scope of the analysis in the FEIS for the IVS project. While the reduction of GHG is a benefit of the IVS project, the BLM is not charged with any responsibility for the reduction of GHG in its directives related to renewable energy projects, including the IVS project.

#### Increase the Range of Alternatives Consistent with a Broader Purpose and Need

As discussed in detail in Chapter 2.0 in the FEIS, the following Build Alternatives, which all meet the BLM purpose and need, were evaluated in detail in the FEIS:

- IVS Project: 750 MW Alternative
- 709 MW Alternative: Agency Preferred Alternative
- 300 MW Alternative
- Drainage Avoidance #1 Alternative
- Drainage Avoidance #2 Alternative

In addition, the following No Action Alternatives, which do not meet the BLM purpose and need, were evaluated in detail in the FEIS:

- . No Action Alternative: No ROW Grant and No CDCA Plan Amendment
- . No Action Alternative: No ROW Grant and Amend the CDCA Plan for No Solar
- No Action Alternative: No ROW Grant and Amend the CDCA Plan for Other Solar

Chapter 2.0 of the FEIS also discusses alternative sites that were considered by the California Energy Commission (CEC) under the requirements of the California Environmental Quality Act (CEQA) only because those sites are not on BLM land and would not require any action by the BLM. A large number of other alternatives was also considered but was not carried forward for detailed evaluation in the FEIS as explained in Chapter 2.0. Refer also to Chapter 2.0, Alternatives Including the Proposed Action, in the FEIS for additional discussion of alternatives considered in the FEIS and why other alternatives were either not considered or were considered but not carried forward for detailed analyses in the FEIS.

#### D.6.1.4 Cumulative Impacts

The comments regarding the cumulative impacts analyses discussed several topics, as addressed below

Comments: F1-2, F1-7, F1-15, F2-1, F2-6, F2-20, F2-25, F2-34, L2-5, O2-2, O2-3, O2-11, O2-12, O2-22, O2-37, O3-4, O4-9, O4-10, O4-11, O6-2, O6-11, and O8-17.

Response: Section 2.10, Overview of the Cumulative Impacts Analysis, in the Final Environmental Impact Statement (FEIS) describes the rationale for identifying renewable energy and other development projects to be evaluated in the cumulative impacts analysis. Although all reasonable renewable energy projects known at the time the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) analyses were prepared were included in that analysis, it is also acknowledged that not all of the renewable energy projects identified may actually be constructed because they:

- (1) Propose technologies at a larger scale than currently available;
- (2) Require approvals from Federal and State permitting agencies that may not feasible; and/or
- (3) Are largely competing for financing from the same limited sources.

Given these uncertainties, the list of cumulative projects evaluated in the SA/DEIS and the FEIS is broader than would likely actually be constructed and represents a conservative (worst case) identification of possible cumulative projects. As described in Section 2.10 in the FEIS, the analyses for the individual environmental parameters included identification of the specific cumulative projects that could potentially contribute to cumulative impacts for each specific environmental parameter.

Several projects were identified in comments on the SA/DEIS. However, these projects were announced subsequent to preparation and distribution of the SA/DEIS. Typically, analyses for an environmental document are based on information known at a certain time, which can be the date of the Notice of Intent (under the National Environmental Policy Act [NEPA]) and/or the Notice of Preparation (under the California Environmental Quality Act). The SA/DEIS analyses was based projects and information known about those projects in 2009. For projects

announced after the preparation of the cumulative impacts analyses, there is little or no information related to those extent of projects or their potential environmental impacts. As a result, evaluation of those projects in the cumulative impact analyses would be speculative. It is expected that the environmental documentation for those projects would assess those projects' contributions to cumulative impacts, including consideration of the Imperial Valley Solar (IVS) project and the other known energy and development cumulative projects listed in the IVS project FEIS, as well as other relevant past, present and reasonably foreseeable projects known at the times those other cumulative impacts analyses are conducted for those projects.

In particular, the Solar Programmatic Environmental Impact Statement (Solar PEIS) initiated by the United State Department of Energy (DOE) is scheduled for completion in late 2011. Through that Solar PEIS, the DOE is considering whether to develop a solar energy program of environmental policies and mitigation strategies that would apply to the deployment of DOE supported solar energy projects on United States Bureau of Land Management (BLM) administered lands or other Federal, State, tribal or private lands. Until the Solar PEIS is completed and the BLM issues a Record of Decision concerning its content, the BLM will continue to process the IVS project and other active solar applications that have been filed pursuant to existing agency policies and procedures. Consideration of the IVS project is anticipated to be included in the PEIS as part of its cumulative analysis.

The level of analysis for cumulative impacts for an environmental document is commensurate with the level of information available regarding the range of projects that are under consideration. Given that not all of the projects identified in the cumulative projects list have been evaluated to a level where the project specific impacts have been assessed and identified, the analyses in the SA/DEIS and FEIS identified the potential environmental impacts of the cumulative projects commensurate with the level of detail available for those projects at the time the analyses were completed. The cumulative analysis in each topical section identifies the IVS project impacts, the effects of the cumulative projects, and the potential contribution of the IVS project to cumulative impacts in addition to the impacts of the cumulative projects, consistent with the requirements of the NEPA.

The cumulative impact assessment of air quality and greenhouse gas (GHG) emissions clearly describes the procedure used to assess cumulative impacts. The air quality and GHG impacts of past, present and reasonably foreseeable projects are discussed in Section 4.4, Climate Change, in the FEIS, to the extent feasible given available data regarding the other cumulative projects.

The potential impacts of the IVS project to recreational resources are addressed in detail in Section 4.12, Recreation, in the FEIS. The analysis of the effects of the cumulative projects on recreation resources is also provided in Section 4.12. That analysis represents the level of detail

available to describe the potential cumulative impacts to recreation resources from past, present and reasonably foreseeable projects including the IVS project.

The potential impacts of the IVS project to sensitive habitats, endangered species, and jurisdictional waters are addressed in detail in Section 4.3, Biological Resources, in the FEIS. The analysis of the effects of the cumulative projects on natural communities, endangered species, wildlife movement, and jurisdictional waters is also provided in Section 4.3 of the FEIS. Those analyses represent the level of detail available to describe the potential cumulative impacts to biological resources from past, present and reasonably foreseeable projects including the IVS project.

The use of groundwater from the Dan Boyer Water Company would not change the cumulative impact analyses prepared for the SA/DEIS and the FEIS. The Dan Boyer Water Company well, the anticipated source of short-term water for construction and operation, is a well that already has adjudicated rights to use the groundwater and the amount of groundwater proposed to be used by the IVS project would be within the limits set forth in the adjudication. Therefore, the groundwater used for the IVS project would not reduce groundwater resources beyond limits that are already established and would not contribute to cumulative impacts to groundwater.

The use of water by the identified past, present and reasonably foreseeable projects has been established using the best available information and adequately addressing the potential cumulative water impact associated with those projects.

It was asserted that construction of the IVS project would allow development and population growth in the areas to receive the electricity produced by the project. Electricity generated by the IVS project would address existing and currently forecasted demand by San Diego Gas and Electric (SDG&E) customers and is largely intended to replace other sources of electricity generated for SDG&E with a cleaner, renewable source of electricity. The generation of electricity by the IVS project will not, in and of itself, result in development beyond current levels forecast by the applicable Federal, State, regional, and local agencies. The IVS project is specifically intended to assist SDG&E in meeting State mandates to achieve 20 percent of electricity generation from renewable resources in the future.

## D.6.1.5 California Desert Conservation Area Plan

These comments expressed concerns about the scope, nature, and specifics of the amendment to the California Desert Conservation Area Plan (CDCA Plan, 1980, as amended) required for the Imperial Valley Solar (IVS) project or the other Build Alternatives.

Comments: NA1-16, NA1-17, NA1-18, O2-2, O2-5, O2-6, O2-7, O2-9, O2-17, O4-9, P9-2, and P11-27.

Response: As described in Sections 1.2.1, and 2.2.1.2 and later analyzed in Section 4.9 in the Final Environmental Impact Statement (FEIS), the CDCA Plan, while recognizing the potential compatibility of solar generation facilities on public lands, requires that all sites associated with power generation or transmission not specifically identified in the CDCA Plan for a project site be considered through the Plan Amendment process.

In addition, the IVS project site is designated as Multiple-Use Class L (Limited Use) in the CDCA Plan. The CDCA Plan allows solar energy uses in that land use designation in the CDCA provided that NEPA requirements are met and the CDCA Plan is properly amended. The construction and operation of a solar generating project on the IVS project site would require the BLM to amend the CDCA to specifically allow a solar energy generating project within the Multiple Use Class L (Limited Use) designation on the IVS project site. Therefore, the amendment to the CDCA Plan pertains only to the IVS project site and is further limited by the accompanying right-of-way grant application.

The CDCA Plan amendment will not result in any changes to the Limited Use designation. The amendment will allow the solar use only on the IVS project site and will not result in any changes in lands use designations or authorized lands uses anywhere else in the CDCA. The CDCA Plan amendment would only apply the to approximately 6,100 ac of BLM-managed land being evaluated for the IVS project. As stated in the FEIS, the reason for the amendment is to specifically allow a solar power generation project on that 6,100 ac parcel which was not previously designated in the CDCA Plan. This amendment and the overall amendment process are consistent with the implementation of the CDCA Plan.

The CDCA Plan was adopted in 1980 and has since been amended many times. Frequently, long range plans that cover large geographic areas such as the California Desert are "living" documents intended to provide overall land use planning guidance and general regulation with more detailed land use information provided through amendments, special area plans, or other more focused planning documents. James B. Ruch, the BLM California State Land Director in his letter presenting the CDCA Plan stated the following:

"The California Desert Plan encompasses a tremendous area and many different fesources and uses. The decisions in the Plan are major and important, but they are only general guides to site-specific actions. The job ahead of us now involves three tasks:

- Site-specific plans, such as grazing allotment management plans or vehicle route designation;
- On-the-ground actions, such as granting mineral leases, developing water sources for wildlife, building fences for livestock pastures or for protecting petroglyphs; and
- Keeping people informed of and involved in putting the Plan to work on the ground, and in changing the Plan to meet future needs."

The CDCA Plan was initially prepared and continues to provide guidance concerning the use of the California desert public land holdings while balancing other public needs and protecting resources. Therefore, amendments to the CDCA Plan can be site specific or global depending on the nature of the amendment. In the case of the IVS project, the amendment is site specific. However, it should be noted that throughout the FEIS (in the land use, recreation and visual impacts analyses, for example), an adverse cumulative impact on desert lands is acknowledged on approximately 1 million acres of land that are proposed for possible solar and wind energy development in the southern California desert lands.

#### D.6.1.6 Air Quality

These comments relate to the attainment status in the project area and other air quality-related issues.

Comments: F2-31, F2-32, S2-5, O2-35, P11-14, and P11-16.

Response: The Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) was published in February 2010. The discussion on attainment status in Section 3.2, Air Quality, in the Final Environmental Impact Statement (FEIS) on attainment status was updated to reflect status updates since February 2010. The updated statuses provided in Table 3-2 in the FEIS are provided here in Table D-3.

These changes do not have a substantial effect on the analyses provided in Sections 3.2 and 4.2, Air Quality, in the FEIS.

The footnote on page C.1-41 in Section C-1 Air Quality in the SA/DEIS is updated by reference to read "U.S. EPA determined on 12/3/09 that Imperial County is approved as attainment of the 1997 Federal 8-hour ozone standard." This change does not have a substantial effect on the analyses provided in Sections 3.2 and 4.2 in the FEIS.

Table D-3 Federal and State Attainment Status for the Project Site in Imperial County

Pollutant	Federal Attainment Status (Table Note 1)	State Attainment Status (Table Note 1)
O <sub>3</sub>	Nonattainment (changed from Moderate Nonattainment)	Moderate Nonattainment
co	Attainment	Attainment
NO <sub>2</sub>	Attainment	Attainment
SO <sub>2</sub>	Attainment	Attainment
PM <sub>10</sub>	Serious Nonattainment	Nonattainment
PM <sub>2.5</sub>	Nonattainment (changed from Attainment)	Nonattainment (changed from Attainment)

Table Sources: California Air Resources Board (ARB 2009) and the United States Environmental Protection Agency (EPA 2009).

Table Note 1: Attainment = Attainment or Unclassified.

Table Key: CO = carbon monoxide;  $NO_2 = nitrogen dioxide$ ;  $O_3 = ozone$ ;  $PM_{10} = particulate matter less than 10 microns in size; <math>PM_{2.5} = particulate matter less than 2.5 microns in size; <math>SO_2 = sulfur dioxide$ .

Air Quality Table 4 in Section C-1 of the SA/DEIS lists ozone (O<sub>3</sub>) air quality monitoring data for the project vicinity. Air Quality Tables 5, 12, and 13 in Section C-1 in the SA/DEIS do not include O<sub>3</sub> because those tables provide data for the criteria pollutant modeling, which does not include O<sub>3</sub>.

All applicable rules for control of fugitive dust emissions are included in Section 4.2 in the FEIS. Compliance with those rules during project construction and operation will be accomplished by implementing Measures AQ-SC3 and AQ-SC7. It is not appropriate to speculate on future rules in an FEIS. The incorporation of the best available control measures (BACM) is specified in the Imperial County Air Pollution Control District (ICAPCD) rules and, therefore, is included in the FEIS.

Emissions of SF<sub>6</sub> are quantified in Section 4.4, Climate Change, in the FEIS. The project-related emissions are no more than for any other type of electrical power plant, as they are from high voltage equipment. This is the only greenhouse gas (GHG) that is the same as traditional electrical power plants. All the other GHG emissions for the project are either tremendously reduced or nonexistent for a solar power plant. Section 4.4 discusses construction and operational GHG emissions and climate change impacts.

Refer also to Section D.4.8, Climate Change, for additional comments and responses related to climate change.

Sections 3.11 and 4.11, Public Health and Safety, and Hazardous Materials, in the FEIS discuss potential risks and hazardous associated with the on-site hydrogen system, including fires.

## D.6.1.7 Biological Resources

The comments regarding biological resources addressed a number of specific topics. The individual comments by topic and the topic specific responses are provided in the following sections.

#### **Botanical Surveys**

Comments: F2-30, O2-24, O6-8, O8-19, O9-21, O10-2, and P7-4.

Response: These comments raised concerns about the adequacy of the botanical surveys conducted for the Imperial Valley Solar (IVS) project site in 2007 and 2008. The United States Bureau of Land Management (BLM) shared those concerns and the applicant conducted additional surveys in spring 2010. The applicant will also conduct late summer/early fall surveys in 2010 to address any special-status species expected to occur following monsoonal storm events that typically occur in the late summer/early fall. Late summer/early fall storms typically result in blooming of plant species that may not occur during spring.

Two rounds of surveys were conducted in spring 2010 by botanists familiar with desert flora and pursuant to accepted survey methodology. The resumes of the botanists conducting botanical surveys were reviewed by BLM biologists. Three special-status species were observed during those spring surveys: brown turbans (Malperia tenuis), Harwood's milk vetch (Astragalus insularis var. harwoodii), and Wiggins' croton (Croton wigginsi). Brown turbans is not Federally listed as threatened or endangered and is not on the BLM sensitive plant species list. Brown turbans is listed by the California Native Plant Society (CNPS) as 2.3 (rare, threatened, or endangered in California, but more common elsewhere/not very threatened in California [low degree/immediacy of threats or no threats known]). Harwood's milk vetch is not Federally listed as threatened or endangered and is not listed as a BLM sensitive plant species. Harwood's milk vetch is listed by the CNPS as 2.2 (rare, threatened, or endangered in California, but more common elsewhere [fairly threatened in California moderate degree/immediacy of threat]). Wiggins' croton is not Federally listed as threatened or endangered, but is listed as a BLM sensitive plant species. Wiggins' croton is listed as 2.2 by the CNPS.

#### **Avoidance of Aquatic Resources**

Comments: F2-5, F2-9, F2-12, F2-13, F2-14, F2-15, F2-16, F2-18, F2-20, F2-23, S2-3, O2-34, O4-3, O4-4, O6-9, O8-6, 09-17, O9-23, O9-52, O9-53, O9-54, and O9-55.

Response: These comments raised concerns about the lack of avoidance of jurisdictional waters of the United States (waters of the U.S.) as well as lack of compliance with the Federal Clean Water Act (CWA) Section 404(b)(1) Guidelines. Subsequent to the completion of the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS), the applicant conducted an alternatives analysis pursuant to the CWA Section 404(b)(1) Guidelines. Those Guidelines state that "...no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." (40 Code of Federal Regulations (CFR) Section 230.10, Subdivision (a)).

The United States Army Corps of Engineers (Corps) has prepared a 404(b)(1) Alternatives Analysis for the proposed IVS project. The preliminary Least Environmentally Damaging Practicable Alternative (LEDPA) has been identified by the Corps. It identifies a modification of the IVS project (the 750 MW Alternative) with reduced impacts to aquatic resources compared to the proposed action. That alternative is identified in the Final Environmental Impact Statement (FEIS) as the 709 MW Alternative (Agency Preferred Alternative). The applicant has reduced the number of SunCatchers to be placed in Waters of the U.S. with emphasis on avoiding those Waters of the U.S. on the site which are considered to have the highest functions and values. The draft LEDPA differs from the proposed action (the 750 MW Alternative) with incorporation of the following modified project features and avoidance and minimization measures:

- Reduction in the number of SunCatchers placed in waters of the U.S. to completely
  avoid the primary washes identified as drainages I, K, and C, and avoidance of the
  northern reaches of drainages D, E, and G. This project design feature eliminates
  1,163 SunCatchers that would otherwise be placed in waters of the U.S., reducing
  permanent impacts to waters of the U.S. from 177.4 acres (ac) under the proposed
  action to 39.1 ac under the Agency Preferred Alternative.
- Reduction in the number of east-west roads to minimize the area of roads in drainages and the number of drainage crossings.
- Minor realignments of the water line from the project site to the Seeley Wastewater Treatment Plant (SWWTP) to eliminate temporary impacts during construction to waters of the U.S.

- Reduction in the width of maintenance roads from 15 to 10 feet (ft) wide.
- Removal of spur roads to individual SunCatchers.
- Removal of sediment entrapment basins.
- Relocation of the Main Services Complex out of waters of the U.S.
- Replacement of culverts with precast concrete arches to reduce fill of waters of the U.S.
- Removal of SunCatchers from the northern reaches of Drainages E and G to reduce impacts to waters of the U.S. as well as to provide additional wildlife corridors within the project site.

The Agency Preferred Alternative/draft LEDPA is a reduced impact version of the proposed action. The impacts of the Agency Preferred Alternative have been analyzed pursuant to NEPA in the DEIS and this FEIS. Refer also to Appendix B, Determination of NEPA Adequacy (DNA), for a summary of that analysis.

## Effects of Climate Change on the Flat-Tailed Horned Lizard

Comments: 02-22 and 03-11.

Response: These comments raised concerns about the lack of analysis about potential effects of global climate change on the flat-tailed horned lizard (FTHL) specifically and special-status species in general. Because the long term effects of climate change cannot be quantified, it is impossible to provide a quantifiable analysis of the potential effects that climate change could have on FTHL and other special-status species.

Refer also to Sections 3.3 and 4.3, Climate Change, in the FEIS, and Section D.4.8, Climate Change, below for additional discussion regarding climate change.

## Flat-Tailed Horned Lizard Connectivity

Comments: F2-28, NA1-11, O2-3, O2-22, O6-8, O7-7, O9-20, and O9-30.

Response: These comments relate to project effects on the connectivity of FTHL habitat, with emphasis on ensuring connectivity between the Yuha FTHL Management Area (MA) south of the IVS project site and the West Mesa FTHL MA north of the IVS project site. Although the IVS project site is somewhat isolated by existing barriers to FTHL movement, specifically Interstate

8 (I-8) adjacent to the south boundary of the project site and Evan Hewes Highway and the railroad to the north, the IVS project site could provide some connectivity between FTHL populations and the two MAs. The applicant has proposed alternatives to eliminate SunCatcher placements in the primary washes of the site, which would generally support potential FTHL movement north or south through the IVS project site. Refer to Section D.4.7.2, Avoidance of Aquatic Resources, above, for additional discussion regarding avoidance of drainages on the IVS project site in the Agency Preferred Alternative.

#### Flat-Tailed Horned Lizard Mitigation

Comments: F2-28, F2-29, NA1-11, S2-3, O2-3, O2-22, O2-31, O2-37, O3-5, O3-7, O3-10, O4-3, O6-8, O7-7, O8-19, O9-4, O9-28, O9-29, O9-43, and P7-3.

Response: These comments raised concerns about the adequacy of the proposed measures to address take of FTHL and the adequacy of the analysis of cumulative impacts, habitat fragmentation, and population densities in the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS). The applicant has proposed to offset project related impacts to and loss of FTHL by implementing measures pursuant to the Flat-Tailed Horned Lizard Rangewide Management Strategy (Strategy). The Strategy was published by the FTHL Interagency Coordinating Committee (ICC) to ensure FTHL and its habitats are managed appropriately. The ICC consists of the United States Fish and Wildlife Service (USFWS), California Department of Fish and Game, BLM, United States Marine Corps, United States Navy, and Arizona Game and Fish.

Pursuant to the Strategy, the applicant will provide the BLM with funds to acquire 6,619.9 acres (ac) of land for preservation of FTHL habitat. In addition to habitat acquisition, as part of the USFWS conferencing, additional conservation measures will be required. The Strategy has been the guiding document for mitigation for FTHL take within the known range of FTHL in the United States. The Strategy has been accepted as suitable for guiding FTHL mitigation within FTHL range. The species is currently proposed for listing pursuant to the Federal Endangered Species Act. If listed, it is unknown at this time if the USFWS would adopt the current Strategy as appropriate mitigation guidelines for unavoidable adverse impacts to FTHL. The USFWS is a coordinating agency for the Strategy. Implementation of measures in accordance with the Strategy is currently accepted to offset impacts to FTHL.

As noted, the Strategy was designed to offset impacts to FTHL. Indirect impacts and fragmentation were also considered in the preparation of the Strategy and the measures to offset impacts to FTHL.

FTHL population densities on the IVS project site were estimated based on extrapolation of data from the Yuha FTHL MA. The Yuha FTHL MA is comprised of better FTHL habitat than on the IVS project site and along the alignment of the water pipeline. The Yuha FTHL MA has one of the densest known populations of FTHL in the Yuha Desert. The BLM considers the population density estimates for the IVS project site extrapolated from known densities in the Yuha FTHL MA as acceptable for purposes of impact analysis.

### Flat-Tailed Horned Lizard Relocation

Comments: F2-28, NA1-11, NA1-15, O2-10, O2-16, O2-22, O3-5, O3-7, O6-8, O7-7, O7-8, O9-43, and P11-31.

Response: These comments raised concerns about the concept of relocation or translocation of FTHL encountered during construction and operation of the IVS project. The common theme of these comments is that relocation/translocation of FTHL to offsite recipient areas is not a proven measure and could result in negative effects on the relocated FTHL and/or to FTHL in the offsite recipient areas. The SA/DEIS discussed relocation/translocation as a potential component of FTHL avoidance, minimization, and mitigation measures. However, the USFWS, as part of its conferencing process, has deemed relocation/translocation as inadequate and the BLM has incorporated a modified Measure BIO-9 in the project. That modified measure requires that FTHL encountered during construction and operations be moved immediately "...out of harm's way..." without any requirement to relocate FTHL to offsite recipient areas.

#### Peninsular Bighorn Sheep

Comments: F2-27, F2-29, S2-3, O2-3, O2-16, O2-23, O3-6, O3-7, O3-8, O3-9, O3-10, O4-3, O6-8, O7-9, O9-5, O9-19, O9-24, O9-25, O9-26, O9-27, O9-48, P7-3, P9-1, P10-1, and P10-9.

Response: These comments raised concerns about the Peninsular bighorn sheep (PBS), including concerns regarding the adequacy of the analysis of the IVS project effects on PBS, loss of migratory and forage habitat for PBS, claims of PBS observations on the IVS project site by members of the general public, the adequacy of the analysis of the use of drainages by PBS, PBS habitat fragmentation, and the adequacy of measures to offset project impacts to PBS. BLM maintains that the March 2009 sighting of PBS on the project site was unusual and transitory, and remains the only documented observation of PBS that far east of its Federally designated critical habitat. There are vast expanses of desert floor Sonoran desert creosote bush habitat adjacent to the existing PBS MAs. The IVS project site is over 6 miles (mi) from Federally designated PBS critical habitat and would not be considered a migratory corridor because the IVS project site is not surrounded by typical PBS habitat. There are PBS MAs north

and south of the Coyote Mountains Area, but the IVS project site is east of there and it is highly unlikely that PBS would circumvent much more efficient routes to other areas occupied by or suitable for occupation by PBS. The IVS project site is in proximity to developed agricultural lands to the east and is bounded to the north by Evan Hewes Highway and the railroad tracks, and to the south by I-8. The IVS project site could provide some temporary forage habitat to displaced PBS, but does not function as primary forage habitat or a migration corridor for PBS. With incorporation of the project avoidance, minimization, and mitigation measures, the IVS project may affect, but will not adversely affect, PBS.

#### Soils

Comments: O2-27, O7-4, O9-14, O9-15, O9-16, O9-18, O9-39, O10-4, and O10-5.

Response: There are very limited areas on the project site that currently support biotic crusts. Much of the site was used for gravel mining in the past and the site is currently used for some recreation uses which may have disturbed or continue to disturb biotic crusts on the site. There are also limited areas on the site that support physical crusts. Therefore, as a result of the limited amounts of these types of soils on the site, the Build Alternatives are not expected to result in substantial adverse impacts to biotic or physical crusts.

#### **Rare Plants Mitigation**

Comments: F2-20, F2-30, O9-21, O9-44, and O9-45.

Response: These comments raised concerns about the adequacy of the proposed mitigation for rare plants and non-listed rare plants. Specifically, the commenter indicated that a 50-foot buffer was inadequate to protect rare plants and that the project would fail to protect non-listed rare plants. A total of 5 special-status plant species were found during spring 2010 botanical surveys. One plant, Wiggins' croton (Croton wigginsii) is listed as BLM sensitive and CNPS 2.2. The remaining 4 special-status species plants which are listed by the CNPS, but have no other Federal or State status, are Harwood's milk-vetch (Astragalus insularis var. harwoodii) (CNPS 2.2), brown turbans (Malperia tenuis) (CNPS 2.3), Utah milk vineweed (Funastrum utahense), and Thurber's pilostyles (Pilostyles thurberi) (CNPS 4.3). To address special-status species that may occur on the project site after late summer/early fall monsoonal rainstorms typical in the project area, botanical surveys are scheduled for fall 2010. There are 2 special-status species with the potential to occur on the project site that are targets of the late summer/early fall 2010 botanical surveys: Abram's spurge (Chamaesyce abramsiana) (CNPS 2.2) and curly herissantia (Herrisantia crispa) (CNPS 2.3). Neither of these has Federal or State status and neither is

listed as BLM sensitive. If project impacts to special-status plants are unavoidable, the applicant will be responsible for 2:1 mitigation as indicated in the project mitigation measures.

#### Salton Sea

Comments: F2-22, F2-24, O1-25, O9-3, O9-40, and O10-5.

Response: These comments stated that the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) did not analyze the potential effects the project would have on the Salton Sea National Wildlife Refuge. The specific concerns noted were the reduction in available water for the Refuge and increased salt and sediment into that watershed. The reduction of water available for the Refuge would be related to the operations of the Seeley Wastewater Treatment Plant (SWWTP) and how much water is released from the SWWTP into the New River. The IVS project and the other Build Alternatives propose to treated water from the SWWTP during operations and construction when that water becomes available. The Seeley County Water District is currently preparing an Environmental Impact Report (EIR) under the California Environmental Quality Act (CEQA) to assess the affects of proposed upgrades to the SWWTP to increase the amount of treated water produced at that facility. Those upgrades are outside the jurisdiction of the BLM and, therefore, are not considered in the FEIS for the IVS project. In regard to increased salt and sediment loads in the watershed, the IVS project has been designed to maintain the existing pre-project sediment transport conditions and will not result in any changes in downstream hydrology or sediment loads.

#### D.6.1.8 Climate Change

These comments raised questions regarding climate change.

Comments: F2-33, O2-35, O8-14, and O9-38.

Response: The effects of climate change on the IVS project, the Agency Preferred Alternative, and the other Build Alternatives are difficult to predict. One primary affect of climate change is sea level rise, which, given the location of the IVS project site well away from the coast and the Pacific Ocean, it is unlikely that sea level rises would pose much of a threat to any solar project on the IVS project site. Another principal affect of climate change is the potentially greater incidence of wild fires. Given the desert location of the project and the limited vegetation on the site, it is unlikely that increased wildfires as a result of climate change will pose a threat substantially different than the existing risks associated with wildfires as discussed in Sections 3.6 and 4.6, Fire and Fuels Management, in the FEIS. None of the other recognized potential

effects of climate change are expected to pose much of a threat to the IVS project site or a solar project on that site.

When the amount of sunlight arriving at the IVS facility is reduced, the amount of electricity produced will also be reduced. This reduction in electrical production will result in a transfer of electrical power from somewhere else in the grid. However, given the gradual replacement of coal, natural gas, and other carbon-based fuel fired power plants with clean renewable energy sources, such as hydro, wind, and solar powered plants, the likelihood that this power transfer will result in a "...gas plant having to kick it up a notch..." is diminishing. The backup to the IVS power plant is the entire existing power grid as well as future clean energy projects as they come on line

#### D.6.1.9 Cultural Resources

The comments regarding cultural resources addressed several topics as discussed below.

#### **Archaeological Studies**

Comments: NA1-7, O6-7, O9-6, O9-33, and O9-49.

Response: Archaeological studies of the surface of the Imperial Valley Solar (IVS) project site (footprint) were prepared by the consultant for the applicant, and deemed adequate by the United States Bureau of Land Management (BLM). A copy of that technical report was provided to interested tribes for comment. As part of good faith and reasonable identification efforts, government-to-government consultation is on-going, including providing for additional site visits seeking comments regarding National Register of Historic Places (National Register) evaluations. The National Register evaluations, in consultation with consulting parties and Tribes, will be completed where feasible prior to the Record of Decision (RQD).

## **Cumulative Impacts on Cultural Resources**

Comments: F1-7, NA1-8, O4-10, and O6-7.

Common Response: The cumulative impacts analysis in the Final Environmental Impact Statement (FEIS) discusses the effects of reasonably foreseeable future projects. Refer to Section 2.10, Overview of the Cumulative Impacts Analysis, for a list of reasonably foreseeable future projects considered in the analysis of the potential for the IVS project to contribute to cumulative adverse impacts on cultural resources. The cumulative impacts analysis for cultural resources is provided in Section 4.5.5, Cumulative Impacts, in the FEIS. That analysis indicates

that the construction of the IVS project and other foreseeable cumulative projects will contribute to permanent long term adverse effects on cultural resources.

#### **Government-to-Government Consultation**

Comments: F2-36, F2-37, NA1-7, NA1-14, O6-7, O9-13, O9-33, and P11-19.

Response: Government-to-government consultation is ongoing, and is summarized in Section 7.0, Native American Consultation. That consultation includes discussions of resources on a landscape level and potential visual effects to those resources. The Tribes participating in this consultation process have been informed that the IVS project will have an adverse effect on cultural resources. Efforts are being made to avoid all known habitation sites and human remains locations through project modifications and design refinements.

The ongoing government-to-government consultation has not yet identified specific traditional cultural properties (TCP) that are eligible for the National Register in the project area of potential effects (APE). In an effort to identify TCPs in the APE that are eligible for the National Register, if any, meetings, requests to interview tribal elders, and field visits continue.

#### **Identification of Cultural Resources**

Comments: NA1-5, NA1-6, NA1-7, NA1-12, O4-6, O6-7, O9-6, O9-49, P7-1, and P7-5.

Response: As part of a good faith and reasonable effort to identify historic properties in the project APE, the BLM has required the preparation of a Class III Inventory. This report was provided to interested Tribes for comment. Based on the consultation process and comments from Tribes and other interested parties, the BLM will make determinations of eligibility and effect for individual resources. On an undertaking wide context, the BLM has determined that the IVS project will have an adverse effect on historic properties and mitigation is required prior to construction. Preliminary mitigation measures are described in the FEIS, and in the draft Programmatic Agreement (PA) provided in Appendix G, Draft Programmatic Agreement, in the FEIS.

#### Juan Batista de Anza National Historic Trail and the Yuha Geoglyphs

Comments: F1-1, F1-3, F1-4, F1-5, F1-6, F1-7, F1-8, F1-10, F1-11, F1-14, F1-16, O2-8, O4-10, O5-1, O5-2, O5-3, O6-3, O7-5, O9-51, P5-1, P12-3, P12-4, and P12-5.

Response: The Juan Batista de Anza National Historic Trail (Anza Trail) corridor is on and near the Imperial Solar (IVS) project site. Although a corridor (not a trail) for the Juan Bautista de

Anza National Historic Trail (Anza Trail) is designated within the boundary of the IVS project site, that corridor alignment it is currently not marked on the project site with Trail signage. The public currently has access to the IVS project site via designated BLM roads.

As of June 2010, no physical evidence for the presence of the Anza Trail or campsite within the IVS project site has been observed. There is ongoing analysis of using remote sensing imagery to try to determine if the Anza Trail is on the IVS project site.

Visitors walking, hiking, or biking on the Anza Trail will hear noise associated with the construction and operation of the IVS project and the other Build Alternatives. However, because these trail users would be transient (traveling through the area) and are already exposed to noise sources such as traffic noise on Interstate 8 (I-8) and other nearby roads, the exposure to IVS project related noise is not expected to substantively affect their visitor experiences. In addition, because much of the inferred trail corridor alignment is this area is on local roads, drivers traveling on the trail would also be transient and would not be expected to be sensitive to noise associated with the construction and operation of the IVS project and the other Build Alternatives. In summary, because the trail visitors would be transient and would be exposed to the IVS project noise for only limited periods of time, the BLM does not believe that it is not necessary to conduct additional noise analysis or noise contour maps at the inferred alignment of the Anza Trail corridor in the project area.

The BLM has determined the IVS project and the other Build Alternatives will have an adverse effect on historic properties. Impacts to the Anza Trail corridor would be substantial. Measures to address project impacts to the Anza Trail are provided in Section 4.5, Cultural Resources, in the FEIS, and the draft Programmatic Agreement (PA) included as Appendix G in the FEIS.

Diary entries authored by Father Pedro Font and Captain Juan Bautista de Anza are included in Section 3.5, Cultural Resources in the FEIS.

Visual impacts to the Yuha Geoglyphs south of the IVS project site would be adverse. However, that impact would not be substantial due to the greater distance between that resource and the IVS project site. Project mitigation will require that all exterior lighting be designed so that lamps and reflectors are not visible from beyond the IVS project site boundary, lighting does not cause excessive reflected glare, direct lighting does not illuminate the nighttime sky except for required Federal Aviation Administration (FAA) aircraft safety lighting, and illumination of the IVS project site and the immediate vicinity is minimized.

#### Mitigation and the Programmatic Agreement

Comments: F2-35, NA1-7, NA1-12, NA1-13, NA1-20, and O9-49.

Response: Preliminary mitigation measures are included in the FEIS, and will be adopted in the ROD. A draft PA is included in Appendix G in the FEIS, with execution of the PA expected prior to the publication of the ROD.

The draft PA stipulates ongoing consultation with tribes, including participation in construction monitoring. The draft PA further requires that development and implementation of an Historic Properties Treatment Plan(s) must take place prior to ground-disturbing activities that have the potential to adversely affect historic properties. The PA stipulates treatment measures to be implemented, regardless of which alternative is selected.

#### D.6.1.10 Public Health and Safety, and Hazardous Materials

This section responds to comments related to the proposed use and storage of hydrogen on the IVS project site.

Comments: L2-8, O2-29, and O4-5.

Response: As described in Section 2.15 in Appendix B, Determination of NEPA Adequacy, in the FEIS, analysis was conducted assuming a worst case release of all the hydrogen on site. It was assumed that a hydrogen release would form a vapor cloud and detonate causing an unconfined vapor cloud explosion. The distance to an overpressure of 1.0 pounds per square inch (psi) was then determined. That is an overpressure that could cause some damage to structures and injury to exposed members of the general population. The maximum distance to this level of impact was estimated to be 0.13 mile. There are no public receptors at this distance from the project site and in general such overpressures would be confined to the project site depending on the location of the cloud at detonation. It is nearly impossible to detonate hydrogen in an unconfined cloud. Hydrogen also disperses very rapidly due to its low density relative to air. The release scenarios considered in the worst case analysis are very conservative in that a release would almost certainly occur over a period of time resulting in substantial dispersion of the hydrogen while the cloud was forming. Actual experience with hydrogen releases have not resulted in unconfined cloud explosions. It is widely believed that unconfined hydrogen will not detonate without a high explosive initiating event. Measure HAZ-2 was expanded to include a Risk Management Plan that would be reviewed by Imperial County. As a result, it is not anticipated a fire would escape from the site.

#### D.6.1.11 Bonds Required of the Applicant

This section responds to comments regarding bonds that will be required of the applicant.

Comments: 01-10, 01-21, and P10-7.

Response: As the steward for the management of Federal public lands, the United States Bureau of Land Management (BLM) has a fiscal responsibility to ensure that projects it approves on those lands do not result in financial liabilities for American taxpayers. As part of the right-of-way (ROW) grant application process, the BLM will identify specific financial resources that must be placed in bonds by the applicant and that would be available to the BLM in the event the project applicant fails to live up to the project construction, operation, and decommissioning requirements; financial; environmental protection; and other commitments and responsibilities associated with the project. As a result, as part of the execution and approval of the ROW grant for the IVS project, the BLM will require the applicant to provide bonds to cover the three major project phases (construction, operations, decommissioning). Those funds would be used by the BLM in the event the project applicant does not meet the defined project obligations and the BLM has to step in return the project site to its pre-project condition. This can include decommissioning of project equipment, demolition and removal of project structures, remediation of any hazardous materials contamination, repair/restoration of drainages and natural topography, revegetation, etc. The value of the bond for each of those three phases will be developed by the BLM and incorporated in the project conditions detailed in the ROW grant.

#### D.6.1.12 Visual Resources

The comments on the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) identified concerns regarding visual impacts including dark skies, light/glare, and desert views. These comments are addressed in the following sections.

#### Impacts to Dark Skies

Comments: F1-12 and O5-2.

Response: These comments raised concerns about potential project related light impacts to dark night skies in the area. To address the potential construction and operation light impacts to dark skies and campers in the Yuha Desert Area of Critical Environmental Concern (ACEC) and the Juan Batista de Anza National Historic Trail (Anza Trail), Measure VIS-2 was incorporated in the IVS project. That measure specifically requires:

- VIS-2

  Temporary and Permanent Exterior Lighting. To the extent feasible, consistent with safety and security considerations, the project owner will design and install all permanent exterior lighting and all temporary construction lighting such that a) lamps and reflectors are not visible from beyond the project site, including any off-site security buffer areas; b) lighting does not cause excessive reflected glare; c) direct lighting does not illuminate the nighttime sky, except for required FAA aircraft safety lighting; and will employ on-demand lighting technology such as a radar-triggered audio-visual warning system; d) illumination of the project and its immediate vicinity is minimized, and e) the plan complies with local policies and ordinances. The project owner will submit to BLM's Authorized Officer for review and approval and simultaneously to Imperial County
  - for review and comment a lighting mitigation plan that includes the following:
     A. The locations and directions of light fixtures will take the lighting mitigation requirements into account;
  - The lighting design will consider setbacks of project features from the site boundary to aid in satisfying the lighting mitigation requirements;
  - The lighting will incorporate fixture hoods/shielding, with light directed downward or toward the area to be illuminated;
  - Light fixtures that are visible from beyond the project boundary will have cutoff angles that are sufficient to prevent lamps and reflectors from being visible beyond the project boundary, except where necessary for security;
  - All lighting will be of minimum necessary brightness consistent with operational safety and security; and
  - F. Lights in high illumination areas not occupied on a continuous basis (such as maintenance platforms) will have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied.

Based on compliance with this measure, the project construction and operation lighting will substantially minimize impacts related to light effects on dark skies.

#### Glint/Glare Impacts

Comments: F1-13, NA1-6, NA1-10, S1-4, L2-10, O7-6, and O8-18.

Response: These comments raised concerns about glint/glare from the SunCatchers and cumulative glint/glare impacts associated with other solar development projects. Measure TRANS-4 specifically requires that:

TRANS-4 The project owner shall prepare and implement a SunCatcher Mirror Positioning Plan that would avoid the potential for human health and safety and significant visual distractions from solar radiation exposure.

This plan will be coordinated with the Federal Aviation Administration (FAA), the California Department of Transportation (Caltrans), the California Highway Patrol (CHP), and Imperial County and will be updated on an annual basis for the first five years and at 2-year intervals after that. The project applicant will be specifically required to coordinate with the FAA on the placement of the SunCatchers, pursuant to the FAA regulations in the Code of Federal Regulations Part 77.

Measure VIS-6 specifically requires:

VIS-6

Reflective Glare Mitigation. The project owner will develop and implement a glare mitigation plan that minimizes visibility of the SunCatcher mirrors to both east- and west-bound traffic on I-8 using one or more measures, which may include but are not limited to 20-foot tall slatted fencing, particularly at the eastern and western boundaries near the highway; earth berms, and/or an increase in the setbacks of the SunCatcher units from the road; and must include a SunCatcher Mirror Positioning Plan (MPP) describing how the outermost rows of SunCatchers could be positioned to avoid or minimize the most intensive potential glare incidents on motorists as called for under Measure TRANS-4. The MPP will include a glare complaint resolution form to be distributed to the BLM and the NPS

Based on implementation on the SunCatcher Mirror Positioning Plan and the glare mitigation plan, the project related glare/glint impacts will be substantially reduced.

After the publication of the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS), the applicant prepared a Glint and Glare Study (Power Engineers, April 26, 2010 and errata dated May 21, 2010) to specifically respond to two key questions regarding visual effects associated with the SunCatcher mirrors:

- (1) Will a 20-foot (ft) high fence or earth berm reduce glint and glare for off site viewers? Based on the study, it was determined that a 20 ft high fence or berm would provide minimal benefits in terms of screening any off site views from glint and glare. The analysis determined that most glint occurs when the SunCatchers are in the offset tracking position. The applicant has determined that the offset tracking position can be adjusted by computers to a setting where the glint to off site viewers would be substantially reduced.
- (2) Will highway travelers experience a flashing effect while driving next to rows of SunCatchers? It is possible that in rare circumstances, motorists may experience a flashing effect in their peripheral vision. The analysis determined that most of the potential for flashing effects occurs when the SunCatchers are in the offset tracking position. The applicant has determined that the offset tracking position can be adjusted by computers to a setting where the flashing effect to motorists would be substantially reduced.

In summary, the IVS project will result in changes in light, glint, and glare on and around the project site. However, based on mitigation included in the IVS project and adjustments to the offset tracking position of the SunCatchers, those impacts can be substantially reduced.

The potential for cumulative glint/glare impacts as a result of other cumulative projects and the IVS project is discussed in Section 4.16, Visual Resources, in the FEIS. That analysis determined that the IVS project in combination with past and foreseeable future projects would contribute to substantial visual changes in the area. If those other projects include solar or other technologies which potentially create glint and glare, there could be a cumulative increase in the overall amount of glint and glare in the area.

Some comments raised concerns about the impacts of glint/glare from an elevated view from a low-flying plane and visual impacts to the military's low level training routes in the area. As noted above, Measure TRANS-4 provides for a SunCatcher Positioning Plan and the project owner would coordinate with the FAA during the development of that plan. Compliance with the plan would substantially reduce glint/glare impacts on aircraft.

#### **Impacts on Views**

Comments: NA1-9, S2-4, L2-3, O5-2, O6-6, O7-5, O7-6, O8-18, O8-22, P7-1, and P7-6.

Response: Some comments raised concerns about the aesthetic impacts on desert lands, impacts to viewsheds including from Evan Hewes Highway, scenic views of the Anza Trail, and impacts to visual resources along Interstate 8. As discussed in the SA/DEIS and the FEIS,

Measure VIS-5 would provide improvements to benefit visitors of the Anza Trail and the Yuha Desert ACEC. The project applicant will contribute funds to the National Park Service (NPS) for improvements for the Anza Trail and funds to BLM for improvements to the Yuha Desert ACEC. Those improvements could include, but not be limited to, interpretive displays or exhibits, improvements to use areas, mounted telescopes, or other improvements to be determined by the NPS and BLM. Measure VIS-4 provides for the setback of the SunCatcher units from roads and measures to minimize views of the SunCatchers with fencing, and/or berms. Measures VIS-6 and TRANS-4 would provide for a glare mitigation plan and a SunCatcher Positioning Plan to avoid or minimize potential glare to motorists, and Measure VIS-7 would provide for the revealation of stacing areas in the project area.

One comment was regarding the impact of 500 miles of unpaved and paved access roads on the IVS project site. As discussed in the SA/DEIS and the FEIS, some roads would be paved to reduce fugitive dust; unpaved roads will be treated with polymeric stabilizers to stabilize the surfaces of those roads. The grading/blading of roads would be conducted to specifically limit the removal of terrain undulations as feasible, ground disturbance activities would be minimized wherever possible, and paved roads would be constructed as close to the existing topography as possible. Because the roads would be developed as close to the existing topography, the views of the roads from off site locations may be obscured by the irregular terrain of the project site, the low rises adjacent to the hishway, fencing, and intervening structures on the site.

Some comments raised concerns of the views of the project site from nearby wilderness areas (Jacumba Wilderness, Coyote Mountains Wilderness) and other special land use designations (Painted Gorge, Yuha Basin/Yuha Desert ACEC). As discussed in the SA/DEIS and the FEIS, the visibility and prominence of the IVS project at background distances is limited. The project contrast would be due primarily to color and texture contrast; at background distances the mirror reflections would often resemble the surface of a lake. The overall line and form contrast would be very weak due to the oblique viewing angle and low overall visual magnitude within the field of view. Project contrast would be seen, but would not attract attention. As a result, no KOPs in those areas were identified or analyzed.

The view from the vicinity of the Yuha Geoglyphs, along the Anza Trail, at a distance of approximately 3 mi, the IVS project would be very evident but would exhibit a moderate degree of contrast. Color and texture contrast could be moderately high, but form and line contrast would be weak due to the level, oblique angle of view and the small part of the field of view occupied by the IVS project. Similarly, the visual dominance of the IVS project would be moderate in scale at this distance and from other principal destinations in the Yuha Desert ACEC, such as Yuha Well, fossil shell beds, and segments of the Anza Trail south of the Yuha Geoglyphs, and along Highway 98 and the surrounding areas, the IVS project would not be

visible due to intervening terrain of washes and low hills. In the context of high viewer sensitivity, the impacts of the IVS project at this distance would be adverse, but not substantial.

Some comments raised concerns about why there were no views of the Key Observation Points (KOPs) on Evan Hewes Highway or from the Coyote Mountains Wilderness or Painted Gorge areas. As discussed in the SA/DEIS and the FEIS, foreground views of the IVS project from Evan Hewes Highway would experience strong visual dominance and visual change by the IVS project. Views of the mountains would be obstructed from this location. Therefore, all views in the foreground and the near-middle-ground distance zones to at least 1 mile away would experience strong project dominance and visual change, which would result in a substantial adverse visual impact.

#### D.6.1.13 Water Resources

The comments received regarding water resources concern three primary issues: the modification to the project to use well water for construction and initial operations, water supply, and water pollution/quality impacts to surface water and groundwater, as discussed in the following sections.

Comments: F2-6, S2-5, L2-4, L2-5, O1-18, O1-19, O1-25, O2-33, O6-9, O6-16, O7-2, O7-3, O8-15, O9-3, O9-11, O9-14, O9-34, O9-35, O9-36, O9-37, O9-41, P11-12, P11-24, P11-35, and P11-38.

#### Temporary Use of Well Water for Construction and Initial Operations

As discussed in Section D.4.16, below, and in detail in the Final Environmental Impact Statement (FEIS) in Chapter 4, Environmental Consequences, and in Appendix B, Determination of NEPA Adequacy (DNA), the Imperial Valley Solar (IVS) project, the Agency Preferred Alternative, and the other Build Alternatives were modified after the publication of the SA/DEIS to use an off site well as a temporary water source during construction and initial operations. The use of water from the existing permitted Dan Boyer Water Company well to provide water to the site is proposed until the Seeley Wastewater Treatment Plant (SWWTP) can provide the water to the site.

It is expected that the IVS project would require water from the Dan Boyer Water Company well for 6 months to 3 years. The water would be transported to the IVS project site in 7,000 gallon water trucks. Based on the expected construction demand of approximately 50 acre-feet-per-year (afy) on average, it is anticipated that up to 13 truck trips would be required per day. If the well water supply is used during initial project operation, a maximum of 7 truck trips per day

would be required to supply the approximate 33 afy demand for operations. Once on site, the water would be stored for construction and/or operations use.

The analysis of the use of the well water is described in detail in the DNA in Appendix B in the FEIS

#### **Water Supply**

The water needs for the IVS project are described above. The Dan Boyer Water Company is a private water purveyor located at 1108 Imperial Avenue in Ocotillo, approximately 3.5 miles (mi) southwest of the IVS project site and 7 mi by road as shown on figures provided in Chapter 2, Alternatives Including the Proposed Action, in the FEIS. The Company operates State well #16S/9E-36G4 with a current permitted pumping rate of 40 afy. The well water is potable and permitted for use by construction or personal consumption. Historically, the well has typically extracted over 100 afy for uses such as construction, dust control, and personal use. The Dan Boyer Water Company had indicated its intent to temporarily furnish well water to the IVS project.

The source of water for the Dan Boyer Water Company well is the Ocotillo Wells, which is a United States Environmental Protection Agency (EPA)-designated sole source aquifer. The water supply capability of Ocotillo Wells is described in the Supplement to the Imperial Valley Solar (Formerly Solar Two) Application for Certification (URS, May 2010).

#### Erosion, Soil Runoff, and Hydromodification

The SunCatchers would be mounted on a pedestal foundation. Those foundations would consist of a metal fin-pipe hydraulically driven into the ground. This type of foundation requires no concrete, generates no spoils, and can be completely removed when the project is decommissioned. The metal fin-pipe foundation eliminates conventional drilling techniques that would generate soil cuttings, require dust suppression, and require the trucking and disposal of the cuttings. However, when conditions are not conducive to the use of the metal fin-pipe foundation, the foundation would consist of rebar-reinforced concrete constructed below grade.

Although the SunCatcher arrangement would be designed to fit the local contours of the site, the density of dishes and the arrangement in straight parallel rows would result in many SunCatchers being installed into flood hazard areas and channels. It is estimated, using a rough grading plan and flood hazard information provided by the applicant, that approximately 5,150 SunCatchers would be placed in flood hazard areas, including active channels. The actual number of SunCatchers subject to flooding is expected to be higher considering the flood-prone areas not mapped on the soil and water resources figure in the SA/DEIS.

Based on the information from the applicant, the total land area disturbed by the construction of the SunCatcher field would be approximately 3,160 square feet per SunCatcher, including the SunCatcher installation, road construction, clearing, and grading. Assuming a minimum of 5,150 SunCatchers in flood hazard areas, the total construction disturbance for the 30,000 SunCatcher array would be at least 374 acres (ac) in floodplains. Approximately 164 ac of this would be permanent disturbance in the form of roads and SunCatcher foundations. The actual floodplain disturbance is expected to be greater due to features placed in flood hazard areas not mapped by the applicant.

During operation, disturbed and cleared areas, primarily within the SunCatcher field, would be subject to increased erosion potential due to the removal of vegetation, the removal of desert pavement, the disturbance of the surface crust, and the placement of SunCatcher foundation poles in the flow path. The result of surface disturbances and the presence of SunCatchers in the flow path could be long-term erosional degradation of the soil surface within the SunCatcher array and in the intervening undisturbed areas, as well as increased sediment discharge off-site across Dunaway Road and toward the east where the Westside Main Canal and New River flow.

SunCatcher foundation poles in the flow path would create local areas of flow turbulence, resulting in local stream scour around the foundation poles. Scour such as this occurs on bridge piers, resulting in the need to bury bridge piers to a depth below the depth of scour to ensure stability. SunCatchers subject to scour could also become unstable if the scour is deep enough to undermine the structural foundation, resulting in collapse and potentially damaging and polluting the ground surface with mirror fragments and other SunCatcher debris.

The SunCatcher foundations will be buried to a sufficient depth to protect against 5 feet (ft) of scour. Using hydraulic information from the HEC-RAS analysis for the project, and the assumption of a 2-ft diameter foundation, that total 100-year scour at SunCatchers would be 5 ft or less in most, but not all, cases. Scour depth is estimated to be deeper than 5 ft in several areas, and if long-term stream degradation and debris accumulation on SunCatcher foundations is considered, the scour depth could be greater than 5 ft in many cases.

Sediment basins are proposed as mitigation for potential excess sediment production which could result from increased sediment transport capacity in the SunCatcher arrays. These basins are designed by a regional equation rather than a site-specific sediment transport analysis. Because of the lack of precision in this form of analysis, the capacity of these basins to function as intended is not known. Because the basins are designed for two years of annual sediment production, they may serve the intended purpose on small floods, but could be overwhelmed by the much larger sediment transport volume of larger floods, with the resulting effect of increased

sediment deposition downstream if sediment transport from the SunCatcher fields has been increased through vegetation clearing and grading of surface irregularities.

On an average annual basis, with smaller floods occurring, the basins may function as intended to remove sediment. However, this too could have an adverse impact after a long series of small floods if the basins remove too much sediment from the system.

Artificial removal of sediment from a stream bed otherwise in equilibrium usually results in a lowering of the downstream bed. The result would be an alteration of downstream channel morphology from wide sandy washes with sallow banks to deeper channels with steeper banks. This could have an adverse effect on local riparian resources, increase the bank erosion potential, as well as affect in-stream man-made structures. Flow cascading into unprotected basins could create cuts that would migrate upstream along the channels.

Preliminary analysis determined that sediment transport capacity in on-site drainages would likely be increased by the project, with possible adverse effects. In the absence of a detailed, site-specific sediment transport analysis specifically addressing these issues, these stream morphology impacts are considered a substantial adverse impact of the project as described in the FEIS.

#### **Aquifer Contamination from Evaporation Ponds**

On-site concrete-lined evaporation ponds will be used as storage reservoirs for construction water trucked in from the off site well and then via the pipeline from the SWWTP. Water quality impacts could occur to groundwater through infiltration of the treated water from the SWWTP. The Colorado River Regional Water Quality Control Board (RWQCB) will require monitoring of groundwater during this period. Compliance with Measure SOIL&WATER-3 in the FEIS will ensure no adverse impacts to groundwater from storage of construction runoff in the evaporation ponds.

The reverse osmosis (RO) water treatment system would produce water with a high concentration of total dissolved solids, as well as other contaminants. These waste waters would be discharged into one of two concrete-lined evaporation ponds at the Main Services Complex for drying. After a pond is filled it would be allowed to dry while the other pond is filled. The dry cake from the evaporation process would be removed and exported by truck to a waste disposal facility. Potential impacts include groundwater degradation from infiltration at the ponds, and surface water degradation from spills and mishandling of the dry cake.

This discharge of wastes to the evaporation ponds would be subject to waste discharge requirements from the RWQCB. The California Water Code (CWC) Section 13260–13269; 23

CCR Chapter 9 requires the filing of a Report of Waste Discharge (ROWD) and provides for the issuance of Waste Discharge Requirements with respect to the discharge of any waste that can affect the quality of the waters of the State. An ROWD would be filed for the RO unit discharge waste. Subject to verification by the RWQCB, the RO unit and evaporation ponds would be constructed and monitored in accordance with RWQCB requirements. Measures SOIL&WATER-3 and SOIL&WATER-7 in the FEIS would ensure no adverse water quality impact from the RO water treatment system.

#### D.6.1.14 NEPA Process and Issues

The responses to comments related to the NEPA process for the IVS project are provided in the following sections.

#### 709 MW Alternative: Agency Preferred Alternative

Comments: F2-6 and O6-2.

Response: These comments question whether the modifications to the IVS project included in the Agency Preferred Alternative are adequately evaluated under the requirements of the National Environmental Policy Act (NEPA). As described in Section 2.0, Alternatives Including the Proposed Action, the Agency Preferred Alternative is the Imperial Valley Solar (IVS) project with modifications. Those modifications are described and evaluated in Chapter 4, Environmental Consequences, in the Final Environmental Impact Statement (FEIS). That evaluation, which is summarized in Appendix B, Determination of NEPA Adequacy (DNA), in the FEIS, determined that the applicant-proposed modifications are within the range of the alternatives (specifically the IVS project) and that impacts documented in the Staff Assessment/ Draft Environmental Impact Statement (SA/DEIS) and the existing NEPA analyses are adequate to document the impacts of the Agency Preferred Alternative (the IVS project with modifications). Refer also to Section D.4.16, Determination of NEPA Adequacy, later in this response to comments appendix for additional discussion regarding the modifications which are part of the Agency Preferred Alternative and the analysis of the potential effects of those modifications.

## Subsequent Environmental Documentation, Adequacy of Resource Inventories, Lack of Additional Studies, Adequacy of Impacts Analysis

Comments: F2-9, F2-10, L2-2, L2-16, O2-4, O2-12, O2-13, O2-14, O2-15, O2-30, O2-32, O6-2, O6-3, O6-4, O6-5, O6-12, O8-2, O9-2, O9-8, O9-56, O9-58, P10-2, P11-5, and P11-13.

Response: The Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) was prepared based on available technical information. Since then, additional information has been provided by the applicant and the CEC. The CEC will be separately preparing and publishing a Supplemental Staff Assessment incorporating some of that information and addressing modifications to the IVS project since the SA/DEIS was published.

The NEPA process, like the CEQA process, was designed to provide information, but also to examine impacts and alternatives with that examination potentially helping to identify ways to improve a project while further minimizing the project impacts. The information disclosure and sharing process inherent with NEPA does not exist in a vacuum and frequently improvements. additional mitigation, and/or project design features are added to a proposed project as a result of comments received on a Draft EIS. Consistent with these tenets of NEPA, the United States Bureau of Land Management (BLM) has prepared a Final Environmental Impact Statement (FEIS) addressing the Agency Preferred Alternative (which is the IVS project with modifications) and which includes results of additional biological resources surveys and other information completed since the SA/DEIS was prepared. The BLM's position is that the SA/DEIS and the FEIS contain sufficient information, including information regarding resources on the BLMmanaged lands on the IVS project site, and analyses to understand and document the effects of the IVS project, the Agency Preferred Alternative, the other Build Alternatives, and the No Action Alternatives and, therefore, recirculation of the environmental document is not required. Refer also to Section 4.21, Determination of NEPA Adequacy, for the documentation of the analyses of the project modifications and the conclusion that the NEPA information and analyses in the FEIS are adequate for the Agency Preferred Alternative.

#### Mitigation

Comments: O2-30, O2-32, O6-2, and O6-4.

Response: The SA/DEIS and the FEIS include extensive mitigation addressing the potential adverse project impacts. Many of these are measures that have been used extensively throughout the State and, therefore, are anticipated to effectively address the adverse project impacts. In addition, many of the measures include standards or other requirements that, if not met, would trigger the need for additional mitigation. BLM's position is that the mitigation as

presented in the SA/DEIS and the FEIS is adequate to address the potential adverse project impacts and includes sufficient standards and other requirements to ensure that the impacts are properly mitigated.

Many of the mitigation measures require the preparation of detailed plans during final design and prior to any activity on the project site. This is consistent with the requirements of NEPA because these measures identify the impacts intended to be addressed by those plans and key activities that would be included in those plans to mitigate the identified impacts.

In summary, BLM's position is that the existing mitigation in the FEIS is adequate to address the adverse project impacts. Where there are adverse impacts that mitigation cannot entirely mitigate, these impacts have been identified as unavoidable adverse impacts of the IVS project and the other Build Alternatives.

#### Fast Tracking/Project Applicant's Schedule

Comments: O8-4 and O8-9.

Response: The fast track schedule for the IVS FEIS is based on The Energy Policy Act and Secretarial Order 3285 (dated March 11, 2009) and not on the applicant's schedule. These directives are discussed in Chapter 1 of the FEIS as part of BLM's purpose and need for the project. The BLM has committed to meeting the goals in these directives and fast tracking some of the renewable energy projects will allow the BLM to meet those goals. The fast tracking included preparation of the joint SA/DEIS with the CEC. The fast track schedule is not in any way dependent on or in response pressure from the applicant.

#### D.6.1.15 California Energy Commission Process

These comments raised questions regarding the California Energy Commission's (CEC) process for complying with the requirements of CEQA and CEC requirements for the IVS project.

Comments: O2-4, P10-2, P11-3, P11-7, P11-10, and P11-11.

Response: The evidentiary hearing process is a California Energy Commission (CEC) process and is outside the purview or control of the United States Bureau of Land Management (BLM). The conduct of those meetings, including providing call-in opportunities, is entirely up the CEC. It should be noted that the meetings were held in EI Centro so interested members of the general public had the opportunity to attend those meetings in person rather than by calling in. All of the CEC methods for public participation or pending decisions are explained in detail on

the CEC website. The CEC use of its website and docketing to provide access to the public for materials related to a proposed project is also a standard CEC process and, again, is outside the purview or control of the BLM. It is also very easy to enroll in the CEC's notification process regarding new information and updates as they are posted on the CEC websites and dockets.

The BLM believes the opportunities for public participation under the National Environmental Policy Act (NEPA) were adequate and included opportunities to review the draft Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) on either the BLM or CEC websites and that the additional information provided by the applicant was readily available on the CEC website

There was no intent to piecemeal the project. The information provided at the CEC evidentiary hearings was in addition to the information provided in the SA/DEIS and on the CEC and BLM websites. Some of that information has also been provided in supplemental information posted by the CEC on its website. The BLM has documented analysis of the modified project components based on the minor changes in the project description in Chapter 4, Environmental Consequences, in the FEIS, which is also summarized in Appendix B, Determination of NEPA Adequacy (DNA). Refer also to Section 4.21, Determination of NEPA Adequacy, for additional discussion of the analysis of the proposed modifications.

Any comments or issues related to CEQA, as noted in comment P11-11, are not within the purview of the BLM and are comments that will be addressed by the CEC.

#### D.6.1.16 Determination of NEPA Adequacy

These comments raised questions regarding the adequacy of the NEPA analysis of the applicant proposed modifications to the Build Alternatives and of the Agency Preferred Alternative.

Comments: F2-26, O2-18, O6-2, O6-9, O6-12, O8-4, O8-15, O9-9, O9-11, O9-57, P11-6, and P11-39.

Response: As described in the Final Environmental Impact Statement (FEIS), the Imperial Valley Solar (IVS) project and the other Build Alternatives include specific modifications to minimize project impacts and to incorporate modifications from the applicant. Those modifications are described and evaluated in Chapter 4, Environmental Consequences, in the FEIS. Appendix B, Determination of NEPA Adequacy (DNA), in the FEIS summarizes the evaluations of each of those modifications and the determinations that they are within the range of the alternatives and impacts documented in the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) and the FEIS, and that the NEPA analyses in the SA/DEIS and FEIS are

adequate to document the impacts of the Build Alternatives with those modifications. These modifications are considered part of the Build Alternatives and not connected actions.

The project modifications analyzed in Chapter 4 and documented in Appendix B in the FEIS for all the Build Alternatives are:

- Two minor shifts in the transmission line. The western transmission line alignment
  modification would occur over a 750 ft long span which would be shifted
  approximately 120 ft southeast of the original alignment in the IVS project. The
  second modification (north of the Imperial Valley San Diego Gas and Electric
  (SDG&E) Substation) would occur over a 1,025 ft long span which would be shifted
  approximately 300 ft east of the original alignment in the IVS project.
- Two minor shifts in the water pipeline between the project site and the Seeley Wastewater Treatment Plant (SWWTP) to follow the Evan Hewes Highway right-ofway (ROW) where feasible.
- Modifications in the onsite hydrogen storage system. The IVS project proposed a centralized hydrogen gas supply, storage, and distribution system. Modifications proposed to this system would require the amount of hydrogen stored for each SunCatcher to be increased from 3.4 to 11 standard cubic feet (scf). To support this increase in hydrogen storage for each SunCatcher, the high pressure supply tanks and low pressure dump tanks at each compressor group would accommodate 29,333 scf and 9,900 scf, respectively. In addition, each of the 30 high pressure tanks that supply hydrogen to the power conversion units within a group of 12 SunCatchers under the current design will have a capacity of 489 scf.
- An alternative water supply for initial construction and operations. This alternative water supply would be provided through the Dan Boyer Water Company in Ocotillo. That water source is potable and permitted for use by construction or personal consumption. It is expected that the Build Alternatives would require this temporary water supply for between 6 months and 3 years. Water would be transported to the project site by 7,000 gallon (gal) water trucks. It is anticipated that up to 13 truck trips per day would be required during construction and up to 7 truck trips per day would be required during operation until treated water from the SWWTP becomes available.

The alternative water source is not expected to adversely affect the Ocotillo-Coyote Wells sole source aquifer because it is a currently permitted well and the applicant will use only the amount of water currently permitted to be drawn from that well. Because that amount is currently permitted, it is assumed not to result in adverse impacts to the sole source aquifer. Appendix B, Determination of NEPA Adequacy (DNA), in the FEIS discusses the use of the alternative water source in greater detail.

#### D.6.1.17 No Response Necessary

These comments made statements or other comments which did not require a specific response.

Comments: F2-4, F2-8, F2-10, F2-11, NA1-1, NA1-19, S2-1, S2-6, L2-1, L2-17, O1-17, O1-23, O3-1, O4-12, O6-1, O8-3, O8-8, O8-23, O8-26, O8-27, O9-12, O9-18, O9-42, O10-1, P7-8, P11-28, P11-33, P11-40, P12-2, P12-6, P12-7, and P12-8.

Response: Noted. No response necessary.

#### D.6.2 Individual Responses to the Comment Letters/Emails

This section provides individual responses to individual comments not addressed by the common responses provided in Section D.4, Common Responses. Each comment is uniquely coded to the commenting party and the individual comment within that comment letter.

The following comment letters included comments that required individual responses which are provided in this section:

- F1 United States Department of the Interior National Park Service (May 4, 2010)
- F2 United States Environmental Protection Agency (June 14, 2010)
- NA1 Quechan Indian Tribe (May 17, 2010)
- S1 California Department of Transportation (May 27, 2010)
- O1 Public Employees for Environmental Responsibility (PEER)
- O2 Center for Biological Diversity (CBD)
- O4 Natural Resource Defense Council and The Wilderness Society
- O6 Backcountry Against Dumps (June 15, 2010)

- O8 Backcountry Against Dumps (May 27, 2010)
- 09 California Unions for Reliable Energy
- O10 California Native Plant Society
- O11 BLM California Desert District Advisory Council (email April 1, 2010)
- P2 Anita Nicklen (email May 28, 2010)
- P7 Brendan Hughes (email May 17, 2010)
- P10 Denis Trafecanty (no date)
- P11 Edie Harmon (email May 26, 2010)

The following comment letters did not include any comments that required individual responses so they are not discussed in this section:

- NA2 Kwaaymii, Laguna Band of Indians (May 16, 2010)
- S2 State of California Department of Parks and Recreation (May 28, 2010)
- L1 City of El Centro (May 13, 2010)
- L2 Imperial County (May 27, 2010)
- O3 Defenders of Wildlife
- O5 Anza Trail Coalition of Arizona
- O7 Basin and Range Watch
- U1 San Diego Gas & Electric (May 14, 2010)
- P1 Edie Harmon and Donna Tisdale (email March 2, 2010)
- P3 Kim Bauer (email April 17, 2010)
- P4 Glenn Kirby (email April 24, 2010)
- P5 Gregory Gandrud (email May 5, 2010)

- P6 Cody Hanford (email May 13, 2010)
- P8 Jamie Shores (email May 26, 2010)
- P9 Patrick Donnelly (email May 26, 2010)
- P12 Greg P. Smestad, Ph.D. (May 21, 2010)

# D.6.2.1 F1 – Responses to Comments from the United States Department of the Interior National Park Service (May 4, 2010)

F1-2 The National Park Service's concern for the cumulative impact of planned renewable energy projects in the California desert is acknowledged. Refer to Section D.4.4 earlier in this report for discussion regarding cumulative impacts.

### D.6.2.2 F2 – Responses to Comments from the United States Environmental Protection Agency (June 14, 2010)

- F2-17 The referenced parcels are privately owned and, at this time, the owners of those parcels have not indicated any interest to the BLM regarding using those parcels for renewable energy uses. As a result, because those parcels are not under lands managed by the BLM, any renewable energy project on those lands would be outside the jurisdiction of the BLM. In addition, the applicant has no rights to those lands and is not considering pursuing the use of those parcels for its project. As a result, these parcels were not been included in any of the Build Alternatives considered in the SA/DEIS and the FEIS.
- F2-19 This comment raised concerns about the unknown quantity of impacts to Waters of the United States (waters of the U.S.) related to the Seeley Wastewater Treatment Plant (SWWTP) reclaimed water pipeline part of the project site as well as the lack of analysis of the potential interim water supply from the Dan Boyer Well. The applicant has quantified the waters of the U.S. that occur along the proposed pipeline alignment. The applicant plans to either span Waters of the U.S., or to use horizontal drilling to install the reclaimed water pipeline below waters of the U.S. Spanning of waters of the U.S. and subsurface installation of facilities below waters of the U.S. are not regulated pursuant to the Federal Clean Water Act (CWA). The reclaimed water pipeline in the IVS project will not result in any fill or discharge to waters of the U.S.

- Refer to Chapter 4, Environmental Consequences, in the Final Environmental Impact Statement for analysis of proposed short term use of water from the Dan Boyer Well.
- F2-21 These comments raised concerns about the impacts to ephemeral washes and potential effects of impacts on ephemeral washes to Federally threatened or endangered species as well as the biodiversity and ecosystem stability the washes provide. The United States Army Corps of Engineers (Corps) has prepared an alternatives analysis pursuant to Federal Clean Water Act Section 404(b)(1) guidelines and the Agency Preferred Alternative (the IVS project with modifications) includes avoidance of impacts in the primary Waters of the U.S. washes. The reduction of impacts to washes under the Agency Preferred Alternative will result in reduced effects to biodiversity and ecosystem stability. There are no known Federally listed threatened or endangered species anticipated to be adversely affected by the IVS project.
- F2-22 Refer to response to comment F2-21, above.
- F2-25 Refer to Section D.4.2 for responses related to the project alternatives and to response to comment F2-24, above.
- F2-26 Refer to Chapter 2, Alternatives Including the Proposed Action, in the FEIS for a discussion regarding water sources for the project.
- F2-41 The Environmental Protection Agency (EPA) submitted a second copy of their comment letter with minor errata as noted on the cover sheet. Because the errata did not change any of the original comments, the entire second copy of the letter was coded as F2-41. The responses to the EPA comment letter are provided above and in Section D.4, Common Responses.

#### D.6.2.3 NA1 – Responses to Comments from the Quechan Indian Tribe (May 17, 2010)

NA1-9 This comment raised concerns that there would be indirect visual impacts to certain ceremonial areas. As discussed in the SA/DEIS and the FEIS, the project was determined to result in unavoidable adverse visual impacts which likely will also include areas identified as ceremonial areas. The adverse visual impacts of the project cannot be fully mitigated and cannot be avoided. However, the Programmatic Agreement discussed in detail in Section 4.5, Cultural Resources, in the FEIS provides an opportunity for Native American Tribes and other interested parties to

consider the project impacts on cultural resources including ceremonial areas, and the mitigation to reduce those effects as feasible.

NA1-13 As a Federal agency, the BLM is not bound by the requirements of CEQA. However, the FEIS describes the Agency Preferred Alternative which was developed from the IVS project specifically to avoid areas of known cultural sensitivity with respect to sacred burial sites and certain drainages, while still accomplishing the majority of the project and meeting the BLM purpose and need. Because the BLM is not bound by the requirements of CEQA, no comment on the intent of meeting the requirements of Appendix K of the CEQA Guidelines is provided.

Refer also to response to comment NA1-12, above, regarding the status of the Programmatic Agreement and the formulation of mitigation measures addressing the project impacts on cultural resources.

NA1-14 Refer to response to comment NA1-13, above.

### D.6.2.4 S1 – Responses to Comments from the California Department of Transportation (May 7, 2010)

- S1-2 It is acknowledged that any transmission lines crossing or within State highway right-of-way (ROW) must meet the requirement in the California Department of Transportation (Caltrans) Encroachment Permit Manual. The project applicant will coordinate with Caltrans as appropriate regarding transmission lines crossing or within State ROW.
- S1-3 It is acknowledged that project related construction traffic on or that may affect State highway facilities will require a traffic control plan consistent with the requirements in the Caltrans Encroachments Permit Manual. The project applicant will coordinate with Caltrans as appropriate regarding the need for construction related traffic control on and crossing State highways.
- S1-5 It is acknowledged that Caltrans will require final environmental documentation, including appropriate avoidance, minimization, and mitigation measures, as part of any encroachment permit application. Note that the final environmental documentation for the IVS project will consist of a Final Staff Assessment (FSA) prepared by the California Energy Commission to comply with the requirement of the California Environmental Quality Act (CEQA) and a Final Environmental Impact Statement

(FEIS) prepared by the BLM to comply with the requirements of the National Environmental Policy Act (NEPA).

### D.6.2.5 L2 – Responses to Comments from Imperial County (May 27, 2010)

- L2-6 None of the Build Alternatives would require the use of any new well or well water on the project site. Well water, from an off site well already permitted for the withdrawal of water, is proposed to be used during constriction an initial operations. Refer to Chapter 2, Alternatives Including the Proposed Action, for a description of that project feature. In addition, refer to Section D.4.2 for responses related to the project alternatives.
- L2-7 The required components of the Fire Prevention Plan are described in Section 4.6, Fire and Fuels Management, in the FEIS.

The hydrogen storage project feature was modified after the publication of the SA/DEIS. That modification is described in Chapter 2, Alternatives Including the Proposed Action, and is evaluated further in Chapter 4, Environmental Consequences, in the FEIS. That evaluation is also summarized in Appendix B, Determination of NEPA Adequacy (DNA), in the FEIS. Section D.4.16, Determination of NEPA Adequacy, earlier in this responses to comments appendix, briefly describes the purpose and content of the DNA relative to modifications made to the Build Alternatives.

L2-8 Discussion of the worst-case release and explosion of the hydrogen on-site is provided in Section 4.11, Public Health and Safety, and Hazardous Materials, in the FEIS.

County Land Use Ordinances do not apply to lands under the jurisdiction of the BLM.

L2-9 The project site is not within 20,000 feet of an existing airport. It is well outside the runway protection zones for the Imperial County Airport. Therefore, it is not expected that the Federal Aviation Administration (FAA) regulations (Code of Federal Regulations Part 77) would apply to the proposed project. Part 77 sets and implements standards for determining obstructions in navigable airspace and the requirements for notice to the FAA of certain proposed construction or alteration that may obstruct navigable airspace. Because the project site is not within 20,000 ft of an airport, it is not expected to obstruct any airspace and, therefore, would not require

review by the Imperial County Airport Land Use Commission (ALUC). However, the ALUC had the opportunity to comment on the draft environmental document during the public review period and no comments were received from the ALUC. Therefore, no determination of consistency is expected to be required from the ALUC for the proposed project.

- L2-11 As indicated in Chapter 2, Alternatives Including the Proposed Action, in the FEIS the construction and installation of the 30,000 SunCatchers for the Imperial Valley Solar (IVS) project will take approximately 40 months. This includes both Phases I and II.
- L2-13 Measure LAND-1 provided in Section 4.9, Land Use, in the FEIS addresses the private parcels and the application of the Subdivision Map Act.
- L2-14 Refer to response to comment L2-6, above.
- L2-15 This comment raised concerns about the lack of surveys for special-status species that could be affected by the diversion of reclaimed water from discharge into the New River from the Seeley Wastewater Treatment Plant (SWWTP) to provide water for the IVS project. It is unknown if the diversion would result in affects to downstream wetlands; however, analysis has indicated that the reduction of flows in the New River from the proposed new water use would not be substantial. Additionally, subsequent to the release of the SA/DEIS, focused surveys for Federally listed species have been conducted with negative results at the downstream areas in question.
- L2-16 Appendix D, Public Comments on the Draft Environmental Impact Statement (DEIS), in the FEIS includes responses to all substantive comments received by the United States Bureau of Land Management (BLM) on the DEIS.

#### D.6.2.6 O1 – Responses to Comments from Public Employees for Environmental Responsibility (April 20, 2010)

O1-4 As a Federal agency, the BLM is not bound by the requirements of the California Environmental Quality Act (CEQA). Compliance with the requirements of CEQA for the IVS project including CEQA objectives is the responsibility of the California Energy Commission. Therefore, a CEQA objectives statement is not included in the FEIS because it is not required as part of the Federal National Environmental Policy Act (NEPA) compliance process. Refer to Chapter 1, Introduction and Purpose and Need, in the FEIS for the BLM's purpose and need for the project which is required information under NEPA.

- O1-9 The references used in the preparation of the SA/DEIS and the FEIS are provided in Chapter 9, References, in the FEIS.
- O1-10 The project does not include a mine reclamation component.
- O1-11 The National Environmental Policy Act (NEPA) does not require the greenhouse gas (GHG) analysis and comparison suggested in this comment. Refer to Sections 3.4 and 4.4, Climate Change, in the FEIS for the GHG analysis conducted for the project.

Wind energy projects are already being pursued in counties north of Imperial and San Diego Counties. Refer also to Section 2.8.3, Other Alternatives Considered but Eliminated from Detailed Analysis, in the FEIS for discussion of why wind energy technologies were not considered as alternatives for the proposed project.

- O1-20 The on-site treated water will meet all water requirements and will be collected in a sealed basin. Section 4.17, Hydrology, Water Use, and Water Quality, in the FEIS for the discussion of waste water treatment and requirements for the Build Alternatives.
- O1-22 Decommissioning and closure are discussed in certain sections where it is relevant throughout the FEIS. For example, Sections 4.3.5.2 in Biological Resources and 4.16.4.2 in Visual Resources discuss the impacts of decommissioning and closure related to those types of resources.
- O1-24 The cited impacts are considered permanent due to the length of time (40 years) the project is expected to operate. The term used as a characterization of the impact does not indicate preclusion from restoration.
- O1-26 There are no laws, ordinances, regulations, and standards (LORS) relevant to land use that would apply to site restoration. Transmission line safety would only be relevant if the transmission lines were excluded from the closure and remained active. The LORS for public health and safety regarding hazardous waste would be the same LORS as would apply for construction.

#### D.6.2.7 O2 – Responses to Comments from the Center for Biological Diversity (May 26, 2010)

O2-4 The BLM will prepare an administrative record that appropriately supports the Draft and Final Environmental Impact Statements. Refer to Section D.4.15, CEC Process, for discussion regarding the CEC process for complying with the requirements of CEQA.

- O2-19 These comments expressed concern about the adequacy of the baseline biological resources and impacts assessment analysis. Additional biological resource surveys have been conducted, including focused surveys for special-status plant species, and additional FTHL surveys. The baseline data at present are current and address the biological components on the project site. The Agency Preferred Alternative (the IVS Project with modifications) has been designed with the baseline biological resources data taken into consideration to avoid and minimize effects on biological resources to the greatest extent feasible while still meeting the project purpose and needs.
- O2-20 Refer to response to comment O2-19, above.
- O2-25 This comment raised concerns about the lack of analysis about the potential for the evaporation ponds to attract birds. The expressed concern was that the attraction of the ponds would result in a risk of avian injury and mortality from increased collisions with the SunCatchers. The project applicant has proposed measures to reduce the attractiveness of the evaporation ponds to wildlife. The transmission line towers in the immediate project area and proposed for connection of the IVS project to the Imperial Valley Substation are no taller than 110 feet (ft). Bird kills from collisions are more typical with structures that are greater than 300 ft tall. The SunCatchers will be 36 ft tall. Additionally, on completion of project construction, the reduced amount of habitat on the project site would result in the attraction of bird species that are adapted to living under disturbed conditions and in close proximity to development.
- O2-26 This comment suggested that the passive relocation planned for western burrowing owl, American badger, and desert kit fox would constitute "take" of these species by forcing them into areas already occupied, thus resulting in take as a result of competition for resources. Passive relocation of western burrowing owls in the Imperial Valley is an accepted mitigation measure. The BLM listed as sensitive western burrowing owls in the Imperial Valley have adapted to dynamic agricultural practices and frequent disturbances related to such practices. Approximately 71 percent of the western burrowing owls in California occur in the Imperial Valley and their population densities are much higher in the agricultural areas of the Imperial Valley than elsewhere. American badger and desert kit fox are not Federally listed as threatened or endangered, and are not listed as BLM sensitive animal species. Therefore, the passive relocation of the western burrowing owl, American badger, and/or the desert kit fox would not result in "take" as defined by the United States Fish and Wildlife Service or the California Department of Fish and Game.
- O2-28 This comment raised concern about the level of effort that would be required to adequately restore the desert vegetation communities on the project site after

decommissioning of the plant. Specifically, the commenter expressed concern about the funding of such an effort, the lack of criteria in the SA/DEIS, and that the applicable California Desert Conservation Area Plan (CDCA Plan) criteria are not stringent enough to result in restoration of the desert vegetation communities that would be affected by the IVS project. The BLM will require that the applicant provide bonding to fund future reclamation efforts. The applicant is preparing a reclamation plan that will have more stringent criteria than the CDCA Plan and will be subject to BLM review and approval before the BLM considers approval of the right-of-way grant.

O2-39 The proposed improvements and upgrades to the Seeley Wastewater Treatment Plant are being addressed in a separate Environmental Impact Report (EIR) being prepared under the requirements of the California Environmental Quality Act (CEQA) by the Seeley County Water District. That EIR will address the potential impacts, including potential growth inducing impacts, of those plant upgrades. Those improvements do not require action by the BLM and, therefore, are outside the purview of the BLM.

### D.6.2.8 O4 – Responses to Comments from the Natural Resource Defense Council of the Wilderness Society (May 26, 2010)

- O4-3 Refer to response to comment O4-4, below.
- O4-4 This comment raised concerns about the unknown quantity of impacts to Waters of the United States (waters of the U.S.) related to the Seeley Wastewater Treatment Plant (SWWTP) reclaimed water pipeline part of the project site as well as the lack of analysis of the potential interim water supply from the Dan Boyer Well. The applicant has quantified the waters of the U.S. that occur along the proposed pipeline alignment. The applicant plans to either span Waters of the U.S., or to use horizontal drilling to install the reclaimed water pipeline below waters of the U.S. Spanning of waters of the U.S. and subsurface installation of facilities below waters of the U.S. are not regulated pursuant to the Federal Clean Water Act (CWA). The reclaimed water pipeline in the IVS project will not result in any fill or discharge to waters of the U.S.

Refer to Chapter 4, Environmental Consequences, in the Final Environmental Impact Statement for analysis of proposed short-term use of water from the Dan Boyer Well.

### D.6.2.9 O6 – Responses to Comments from the Backcountry Against Dumps (June 15, 2010)

- O6-6 This comment raised concerns about that mitigation measures that themselves could have impacts from the construction of structures such as the 20-foot tall fencing. As discussed in the SA/DEIS and the FEIS, Measure VIS-1 provides that BLM would have approval over the surface treatment of structures and coloring of security fencing with vinyl or other non-reflective coating; or with slats or similar semi-opaque, non-reflective material, to blend to the greatest feasible extent with the background soil. BLM staff will review and approve a specific Surface Treatment Plan. In addition, refer to Section D.4.12.3 for other responses related to visual resources.
- O6-10 Federal preemption of local plans occurs under the hierarchy of government powers. This comment refers to CEQA requirements which are the responsibility of the California Energy Commission, a State agency, and not the BLM, a Federal agency responsible for compliance with the National Environmental Policy Act and not CEQA. The BLM has no land use or other authority over lands in private ownership; those lands in and near the IVS project site are under the land use jurisdiction of Imperial County. Therefore, the characterization of the IVS project is correct with regard consistency. However, more properly stated, the proposed IVS project in consideration of the LORS does not create an inconsistency. Section 4.9, Land Use, in the FEIS identifies three unavoidable adverse impacts related to land use and recreational opportunities as well as cumulative impacts.
- O6-15 As discussed in Chapter 2.0, Alternatives Including the Proposed Action, in the FEIS, Phase II of the IVS project would require operation of the Sunrise PowerLine or provision of additional transmission capacity within the existing San Diego Gas and Electric ( SDG&E) system. The IVS project is not solely dependent on the Sunrise PowerLine project and inclusion of that facility in the IVS project description evaluated in the FEIS is not warranted.

#### D.6.2.10 O8 – Responses to Comments from the Backcountry Against Dumps (May 27, 2010)

- O8-6 This comment questioned the results of the Howard Chang hydrology analysis and is duly noted by the BLM. No response is necessary.
- O8-7 It is not unusual that design features of a project are modified and refined over time.

  For example, the SunCatcher features have been refined by the applicant but continue

to function the same way as described in the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS). Because the project would be constructed of components nearly identical to those considered in the SA/DEIS and would function in the same way, the refinements would not be sufficient to trigger the need for additional analysis or recirculation of the environmental document.

As described in the SA/DEIS, during wind or sand storms, the SunCatchers will be in the down position to protect the mirrors and minimize the risk of damage to the SunCatchers themselves. This should not change substantially based on changes in the weight of the SunCatchers. Similarly, in very windy conditions, the SunCatchers will be in the down position and would not be expected to generate noise or vibration that would affect off site sensitive receptors.

Finally, it should be noted that no facility can be designed to withstand all wind or sand storm events or seismic events totally undamaged. Engineering and construction to achieve 100 percent avoidance of any damage at all due to any possible event is unrealistic and would be prohibitively costly.

The existing and historic weather information used for the FEIS analysis is from the EI Centro Weather Station. There has also been an existing weather station on the IVS project site at the Imperial Valley Substation for over a year.

- O8-10 The environmental review of the Sunrise Powerlink project by the BLM and California Public Utilities Commission (CPUC) is complete. SDG&E received a Certificate of Public Convenience and Necessity from the CPUC for the Sunrise Powerlink project. Therefore, the project is already approved. The Sunrise Powerlink is independent of the IVS project and will be built regardless of whether or not the IVS project is approved for implementation.
- O8-11 Refer to response to comment O8-10, above.
- O8-19 This comment questioned the conclusion in the SA/DEIS that Interstate 8 (I-8) functions as a barrier for FTHL, and stated that the commenter regularly observes FTHL crossing roads. Paved roads can attract FTHL after sunset if they are radiating more heat than natural substrates; however, crossing two heavily travelled two-lane sections of I-8 poses a substantial daunting challenge for FTHL and the BLM considers I-8 to function as a barrier to FTHL movements.

This comment asked about the effects of the disturbances associated with underground power lines. The impacts associated with underground power lines are construction impacts. The impacts from all construction activities associated with the project, including underground facilities, are evaluated throughout Section 4.0, Environmental Consequences, in the FEIS in the discussions related to construction impacts.

- 08-20 The analysis of potential seismic issues at the project site is not based on individual events such as the April 4, 2010 earthquake on the Laguna Salada fault. Earthquakes and earth movement are continuous in California as a result of its location at the meeting of two tectonic plates. It would not be possible to prepare any geological or seismic analysis in California that includes every single seismic event because these events occur continuously. For example, before and since the April 4, 2010 earthquake, there were and have been hundreds or thousands of additional events in the same geographic area and likely generated on the same fault. As a result, seismic studies consider the potential for ground shaking and seismic surface rupture based on past records of seismic activity and the locations of known faults in relationship to a project site. Nonetheless, regardless of the occurrence of individual seismic events or the locations of known faults with past surface ruptures or blind faults with no evidence of surface rupture, all buildings and structures in California must be designed and constructed consistent with the 2007 (or more recent) California Building Standards Code (CBSC) in Title 24, California Code of Regulations, which includes specific codes for all aspects of building and structure design and construction including standards related to the potential for seismic shaking, liquefaction, local subsidence, and other soil conditions. Considering the April 4, 2010 earthquake on the Laguna Salada fault would not substantively change the analysis in the Final Environmental Impact Statement which clearly indicates that the site is subject to seismic shaking and possibly soil liquefaction and local subsidence or the project mitigation which clearly requires design and construction of the project be consistent with all applicable parts of the CBSC in Title 24. Therefore, because the analysis and conclusions would not change based on consideration of the April 4, 2010 earthquake, it is not necessary to revise the analysis to reflect that earthquake or to recirculate the environmental document.
- O8-21 Refer to response to comment O8-20, above.
- O8-24 As discussed in Section 4.14, Special Designations, in the FEIS, there are no wilderness areas near or in the immediate vicinity of the project site. As a result, it is not expected that the IVS project would adversely impact the visitor experience at wilderness areas further from the project site. Section 4.12, Recreation, in the FEIS, acknowledges that the IVS project will disrupt a highly active recreational area and would adversely affect users of those recreational lands. The FEIS further acknowledges this as an unavoidable adverse impact of the IVS project and that the

IVS project and other cumulative projects will result in an unavoidable cumulative adverse impacts on recreation resources.

O8-25 Refer to response to comment O8-24, above.

### D.6.2.11 09 – Responses to Comments from the California Unions for Reliable Energy (May 27, 2010)

- O9-10 The proposed improvements and upgrades to the Seeley Wastewater Treatment Plant are being addressed in a separate Environmental Impact Report (EIR) being prepared under the requirements of the California Environmental Quality Act (CEQA) by the Seeley County Water District. That EIR will address the potential impacts, including potential growth inducing impacts, of those plant upgrades. Those improvements do not require action by the BLM and, therefore, are outside the purview of the BLM.
- O9-14 This comment stated that the environmental document failed to adequately analyze the soil and water conditions on the IVS project site to establish baseline data. The geology, hydrology, and biology sections of the Staff Assessment/Draft Environmental Impact Statement identify and describe the baseline conditions for soils and water on and in the vicinity of the IVS project site. Refer also to response to comment O9-40, below, for a discussion regarding potential project effects on the Salton Sea and to Section 4.18 for responses related to water resources.
- O9-22 This comment raised concern about the lack of surveys for the western burrowing owl 
  (Athene cunicularia var. hypugaea) in the SA/DEIS. The applicant conducted the 
  western burrowing owl surveys pursuant to the California Burrowing Owl Consortium 
  guidelines.
- O9-31 This comment raised concern about the potential for the project to result in take of the golden eagle (Aquila chrysaetos). There are only five recorded observations of golden eagle in the Imperial Valley. Golden eagles likely occur to the west of the project site in the Coyote Mountains area. It is highly unlikely that golden eagles would nest on the project site. The probability of golden eagle flying over the project site is low. The site could provide low to moderate forage habitat for the golden eagle. Golden eagle has not been observed on or over the project site. Implementation of the Imperial Valley Solar (IVS) project would not constitute take of the golden eagle and the Federal Bald and Golden Eagle Protection Act would, therefore, not be applicable to the IVS project.

- O9-32 This comment raised concern about the lack of analysis of the potential impacts of the IVS project on the fringe-toed lizard (*Uma inormata*). The project site is not within the historic range of the fringe-toed lizard, which is known from the Coachella Valley. The fringe-toed lizard was not known to occur in the Yuha Desert and, therefore, was not included in the impacts assessment.
- O9-38 The comment asserts that "...summer rainfall in southeastern California may increase by as much as 50% by 2080..." There is no requirement for an environmental document to attempt to speculate on weather patterns 70 years in the future or to speculate or attempt to analyze the secondary effects of weather changes in the future on a proposed project. The FEIS analysis is based on known weather patterns and historical precipitation for the southern California desert. Sections 3.4 and 4.4 in the FEIS discuss climate change.
- O9-46 Refer to response to comment O9-22, above.
- O9-47 This comment raises concerns that the adequacy of pre-construction surveys for nesting birds is not scientifically supported and would not prevent impacts to nesting birds. The intent of pre-construction nesting surveys is to identify all active nests within the survey area to avoid direct impacts. The use of accepted techniques and qualified biologists will be used to avoid and minimize project effects to nesting birds to the greatest extent feasible and no nesting birds will be intentionally taken.

#### D.6.2.12 010 – Responses to Comments from the California Native Plant Society (May 27, 2010)

- O10-3 The on-site treated water will meet all water requirements and will be collected in a sealed basin. Section 4.17, Hydrology, Water Use, and Water Quality, in the FEIS for the discussion of waste water treatment and requirements for the Build Alternatives.
- O10-6 The fugitive dust control measure provided in Section 4.2, Air Quality, in the FEIS identifies Soiltac™ or a product with same or better performance as the chemical dust suppressant proposed to be used. Soiltac™ is a copolymer soil stabilizer.

#### D.6.2.13 O11 – Responses to Comments from the BLM California Desert District Advisory Council (April 1, 2010)

O11-1 Figures 1 through 4 were added to CEC Website and the SA/DEIS provided figures at the end of the alternatives and cumulative projects discussions. These figures were

included in the SA/DEIS from the time of its posting on the CEC website at the beginning of the public review period for the SA/DEIS in February 2010.

### D.6.2.14 P2 – Responses to Comments from Anita Nicklen (May 28, 2010)

P2-1 This email was received by the BLM EI Centro Field Office when Ms. Nicklen resubmitted it as shown on the copy of her email transmittal dated 5/28/10 and as acknowledged by the response from Ms. Simmons of the BLM in her email to Ms. Nicklen.

### D.6.2.15 P7 – Responses to Comments from Brendan Hughes (May 17, 2010)

P7-2 Three No Action Alternatives were analyzed in detail in the SA/DEIS and the FEIS. A ban on development in the California Desert Conservation Area (CDCA) would be counter to the mandates for the BLM to accommodate renewable energy project on BLM managed lands. As noted in the project description in the SA/DEIS and the FEIS, the Build Alternatives would all require an amendment to the CDCA Plan (1980, as amended) to allow for a solar project on the project site. This type of amendment is consistent with the CDCA Plan and the overall process for ensuring consistency between the CDCA Plan and its protections and guidance for managing those lands, and lands uses proposed on BLM managed lands.

#### D.6.2.16 P10 – Responses to Comments from Denis Trafecanty (No Date)

P10-8 Other renewable energy projects are being pursued in eastern San Diego independently of the proposed IVS project.

### D.6.2.17 P11 – Responses to Comments from Edie Harmon (May 26, 2010)

P11-2 The SA/DEIS was released for public review for a 90-day period. While the standard review period is usually 45 days, because of the technical complexity of the project, the comment period was longer than the minimum required.

- P11-8 Refer to response to comment P11-2, above.
- P11-15 Previous decisions regarding the boundaries of Areas of Environmental Concern (ACECs) are not relevant to the IVS project because there are no ACECs on or in the immediate vicinity of the IVS project site.
- P11-25 The alternatives considered in the FEIS are based on the BLM project purpose and need. While the reduction of greenhouse gas (GHG) emissions is a benefit of renewable energy projects, it is not part of the BLM purpose and need. Therefore, alternatives specifically intended to result in GHG reductions or fossil fuel consumption reductions were not considered as alternatives in the FEIS evaluation.

# Appendix E Seeley Wastewater Treatment Plant Improvements

This appendix contains analysis conducted by the California Energy Commission for the proposed upgrades to the Seeley Wastewater Treatment Plant. This is provided as general information in this Final Environmental Impact Statement because these improvements are not part of the Imperial Valley Solar project.

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# APPENDIX 1 SEELEY WASTEWATER RECLAMATION FACILITY IMPROVEMENTS D

Susan V. Lee

DOCKET

DATE 03/18/10 RECD 03/18/10

# 1. INTRODUCTION

Stirling Energy Systems Solar Two, LLC (Applicant) filed an Application for Certification (AFC) with the California Energy Commission and Bureau of Land Management (BLM) for its proposed Stirling Energy Systems Solar Two (SES Solar Two) Project in June 30, 2008. The Application was deemed adequate on October 8, 2008. This report provides additional information about the upgrades to the Seeley Wastewater Reclamation Facility (SWWRF) that are related to the SES Solar Two Project.

# 1.1 BACKGROUND

According to the original AFC filing, the Imperial Irrigation District (IID) would provide the water supply for the project from its Westside Main Canal raw canal water, which was to be treated to provide an appropriate quality of water for mirror wasting and to meet the standards for on-site drinking water. The applicant estimated approximately 33 acreper-feet per year (afy) of water would be used annually for mirror washing and domestic use. There were no provisions in the AFC for a backup water supply.

In the first set of data requests, the California Energy Commission (Energy Commission) and the U.S. Bureau of Land Management (BLM) asked the Applicant for additional information on the reliability of the SES Solar Two Project water supply from IID and the source of back-up water in the event that there are future interruptions in the primary water. In considering the responses to these questions, an in-depth evaluation of the SES Solar Two water supply options in terms of reliability, cost, and environmental impact was performed. After extensive research, in June 2009 SES Solar Two provided a Supplement to the AFC to report the Applicant's new primary source of water: reclaimed water from the SWWRF.

The June 2009 Supplement analyzed the 12-mile water pipeline that will transport water from SWWRF to the SES Solar Two site. The impacts of constructing the water line were analyzed in Sections C and D of the SES Solar Two SA/DEIS (published on February 12, 2010). Since the publication of that supplement, Seeley County Water District (SCWD) released a Draft Mitigated Negative Declaration (MND) for the SWWRF Improvements. These improvements are necessary to ensure that no discharges from the facility exceed established effluent limits in the future. The SES Solar Two Project is anticipated to take up to 200,000 gallons-per-day (gpd) of the treated effluent. Other possible users of the tertiary-treated effluent include existing and new uses identified and evaluated in Imperial County's General Plan.

Rather than adopting the MND, SCWD is preparing an Environmental Impact Report (EIR). The Energy Commission Staff Assessment (SA) for the SES Solar Two Project assumed that the MND would be adopted. Because the MND was not adopted, this Appendix provides an independent analysis of the potential impacts of the SWWRF

improvements. The EIR prepared for the SCWD will be used by the District to evaluate the impacts and to support the District's decision on the upgrades. The Energy Commission and BLM present this information in order to disclose the types and extent of impacts of the facility upgrades.

# 2. DESCRIPTION OF SEELEY WASTEWATER RECLAMATION FACILITY IMPROVEMENTS

#### 2.1 LOCATION

The SCWD proposed an upgrade of an existing facility, located along the western boundary of the unincorporated community of Seeley in Imperial County, California. The project area is located within the existing Seeley Wastewater Treatment Plant, located along the western boundary of the unincorporated community of Seeley in Imperial County, California (see Appendix 1, Figures 1 and 2).

The community of Seeley is located approximately eight miles west of El Centro, 10 miles north of the border between the United States and Mexico, and approximately 100 miles east of San Diego. The Seeley Wastewater Treatment Facility is located immediately east of the New River, south of El Centro Street and west of New River Blvd. (see Appendix 1. Figure 2).

# 2.2 AGREEMENT TO SERVE SES SOLAR TWO PROJECT

After evaluating the currently available water supply options, the Applicant concluded that the primary source of water for the Project would be furnished by the SWWRF. SES Solar Two would finance upgrades to the existing treatment plant so its effluent meets Title 22 requirements for recycled water. In exchange, SES Solar Two would have access to approximately 150,000 gpd and up to 200,000 gpd of reclaimed water for use in all construction and operation activities except for potable water.

SCWD serves customers in the town of Seeley, which is located in the unincorporated area of Imperial County, California, with certain utility services, including sewage collection and treatment services. Currently, sewage collected in Seeley's system is treated and, thereafter, flows into the New River via an unlined channel approximately 800 feet long by 50 feet wide. The current influent rate to the SWWRF is approximately 112,000 to 150,000 gpd and the current discharge rate to the unlined channel is approximately 0.15 cubic feet per second (cfs) or approximately 110 acre feet per year.

SCWD has agreed to make reclaimed water available to SES Solar Two (see Attachment A to the June 2009 Supplement – Will Serve Letter). An agreement between SCWD and SES Solar Two was signed at the Seeley Board Meeting on May 18, 2009.

# 2.3 FACILITY UPGRADES REQUIRED

Wastewater treatment facility improvements would be located at the existing WWTP, at the northwestern side of the community of Seeley. Improvements will be made within the existing treatment facility on an approximately 5-acre area which has been previously disturbed in association with construction of the original facility.

#### **Current Operation**

The District operates a wastewater treatment facility that is permitted for 250,000 gpd and capable of treating 250,000 gpd. The treatment plant currently houses a series of five treatment ponds, including two 0.12-acre "reactor" ponds and three 0.14-acre sedimentation ponds.

The treatment facility discharges effluent treated to secondary standards via an unlined channel to the New River. The facility operates under a New River discharge permit from the Regional Water Quality Control Board (RWQCB), Colorado River Basin which includes effluent limits for a number of pollutants, including Total Suspended Solids and Biochemical Oxygen Demand (Order No. R7-2007-0036, NPDES No. CA0105023). Over the past several years, discharge from the facility has exceeded these effluent limits, and the District has received notices of violations.

# **Proposed Facility Improvements**

The District proposed to carry out the project to upgrade the existing facility to Title 22 standards, with tertiary effluent suitable for unrestricted recycled uses. This upgrade is needed to help ensure that no discharges from the facility exceed established effluent limits in the future.

Tertiary treatment processes are those processes that remove additional suspended solids from the secondary effluent by filtration followed by disinfection. As stated above, the current influent rate to the SWMRF is about 112,000 to 150,000 gpd (104 gpm or 168 afy). The proposed SWWRF upgrades along with a newly constructed pipe delivery system from Seeley to the Project and proposed onsite storage will be adequate to provide a reliable source of water for the SES Solar Two Project.

To achieve tertiary treatment, the following steps would be taken:

- Modify two of the existing treatment ponds to accommodate an activated sludge process, a microfiltration system, and ultraviolet disinfection.
- Convert two existing treatment ponds to in-ground earthen basins lined with a synthetic flexible membrane and a floating cover for storage of at least 300,000 gallons of recycled water
- Abandon the remaining treatment pond.
- Discharge the treated recycled water to the New River via the unlined channel.
   Onsite pump stations would convey process flows and product water. Piping between the various treatment processes will be undergrounded.
- Install a new backup generator as part of the project; additionally, generators may be required temporarily during project construction.
- Sludge wastes from the process would be dried on open-air drying beds and disposed of offsite at a landfill with sufficient capacity and permitted to accept

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¹ Primary treatment includes using primary clarifiers to separate heavy material (sludge) from light material (scum) from the influent. The sludge and scum removed are generally directed to a solid handling facility. Secondary treatment generally uses an aerobic biological process to degrade the biological content of the sewage which is derived from human waste, food waste, soaps, and detergent.

geosolids. The sludge drying beds would consist of a 12-inch sand layer underlain with drain piping.

- Discharge of the treated effluent via the unlined channel to the New River, unless and until approvals are issued that would allow disposal of the tertiary-treated effluent elsewhere.
- If the effluent is disposed elsewhere, it would likely be made available by the District
  at a point that would eliminate the discharge along the unlined channel into the New
  River.
- The SES Solar Two Project is anticipated to take up to 200,000 gpd of the treated effluent. Other possible users of the tertiary-treated effluent include existing development and new development identified and evaluated in Imperial County's General Plan.
- The proposed tertiary treatment facilities would not expand the current capabilities of the WWTP, and there is not indication that the upgrades would result in a change in outflow from the WWTP (Dudek 2009).

#### Construction

To access the treated water, SES Solar Two will construct approximately 12 miles of pipeline from the Seeley facility to the solar project's water treatment plant along the Evan Hewes Highway. The environmental analysis of the pipeline can be found in Section C and D of the SA/DEIS. The location of the water pipeline is illustrated in Appendix 1 Figure 3.

# Wastewater Treatment Facility Construction

The construction of the Seeley Wastewater Treatment Plant (SWWTP) will utilize typical construction methods for this type of work including:

- Earthwork including excavation/shoring, hauling, backfill/compaction, rough site grading.
- Forming and placing cast-in-place concrete structures and slabs at grade.
- · Installation of treatment plant equipment.
- Installation of interconnecting piping, valves, sewer maintenance holes, etc.
- Installation of electrical conduits, feeders, handholes, and a new main service/transformer and emergency back-up generator.
- · Delivery of equipment and materials to the site.
- · Haul off of excess materials.

It is anticipated that the SWWTP upgrades project will be implemented parallel to the existing plant process with plant cutover occurring after the upgraded plant has been commissioned and is operational. The following discussion presents a typical strategy for the implementation of the project with an estimate of the duration and staging for each phase of construction (Dudek 2010).

The construction phasing for a wastewater treatment plant generally begins with initial procurement of equipment and materials that coincide with physical mobilization on the project site. Following the start of the procurement phase, general site civil work can begin focused on rough grading, installation of yard piping, and preparation for structural work. As the general civil progresses, structural work will commence including foundation slabs and concrete structures. When foundations slabs are complete, equipment deliveries begin and mechanical installation will commence. As equipment is installed, the electrical work will continue, tying each plant area to the on-site electrical system. After all mechanical equipment is complete, the facility will start up, be tested, and commissioned. This process can take between four and six weeks. Each of these phases is described in more detail below.

The critical path for the SWWTP upgrades project is believed to be procurement of long lead time equipment, mechanical and electrical installation, and start-up and commissioning services. The overall construction phase duration could take between six and ten months.

The average on-site crew size for the duration of the project will be approximately 20 workers with peak days between 30 and 40 workers. The crew size will tend to be smaller the first quarter of the construction period, peaking during the second and third quarter, and then tailing off toward the end of the construction period.

#### **Procurement and Mobilization**

Procurement of materials and equipment will include mostly office-based or off-site work consisting of equipment and material review/approvals, manufacture of materials and delivery. Procurement is anticipated to take approximately six months (26 weeks) from issuance of Notice to Proceed to the construction contractor. As equipment is delivered, it will be installed such that the procurement tasks will overlap other construction phases described below.

Concurrent with the procurement process, the contractor can begin general civil and structural work that is not dependent on long lead time items. Site investigation, utility coordination, permitting, and site preparation will also take place during this initial phase.

#### **General Civil**

General civil work includes earthwork, yard piping, pre-cast concrete structures, on-site sewer facilities, surface improvements (asphalt concrete, concrete walkways/sidewalks, and gravel access roads), and rough and final grading. The most significant civil work for the SWWTP project is the installation of the sludge drying bed facilities including underdrains and block partition walls.

Earthwork associated with the SWWTP upgrades project will include minimal grading for foundation of proposed structures and miscellaneous excavation, backfill, and compaction for the plant facilities. Pads will be graded and compacted for proposed buildings and structures. Yard piping (buried) will be installed consisting of trenching, pipe fitting, backfill, and compaction. The last earthwork task is final grading to restore/maintain drainage within the site.

The general civil work for the project will utilize conventional construction equipment including excavators, loaders, dump trucks, bulldozer, vibro compactors, water trucks, equipment/material delivery trucks, concrete transit mixers, concrete pumper, asphalt concrete paving machines, cranes, conveyors, compressors, and generators. Equipment and materials will be delivered to the site via Evan Hewes Highway and New River Boulevard. The haul trucks will access the site from the driveway on the east side of the site through the existing plant entrance.

Deep excavations for the recycled water pumps and interconnecting piping, on-site sewer facilities, and utility connections will likely utilize sloped trench wall construction and/or trench shields or pre-engineered shoring systems. The excavations associated with installation of on-site appurtenances are anticipated to be traditional cut/cover with minimal haul-off quantities.

The typical excavation crew size is anticipated to vary from 20 to 25 workers during the initial construction period with smaller crews varying between 5 and 10 workers completing the yard piping installation and final grading.

#### Structural

Structural work will include cast-in-place structural concrete and erection of prefabricated steel buildings.

The structural work for the project will utilize conventional construction equipment including cranes, forklifts, water trucks, equipment/material delivery trucks, concrete transit mixers, concrete pumper, conveyors, compressors, and generators. Equipment and materials will be delivered to the site with access from Evan Hewes Highway and New River Boulevard. The construction vehicles will access the site from the driveway on the east side of the site through the existing plant entrance.

The typical structural crew size is anticipated to vary from 10 to 15 workers during the concrete forming, placement, and curing.

The typical structural crew for the building erection is anticipated to vary from 10 to 15 workers. The two pre-fabricated buildings are anticipated to take approximately three weeks on-site for erection followed by two to three weeks for interior finishes.

#### Mechanical

Mechanical work will include installation of equipment, piping, and appurtenances.

The mechanical work for the project will utilize conventional construction equipment including, cranes, forklifts, equipment/material delivery trucks, compressors, generators, and pneumatic tools. Equipment and materials will be delivered to the site with access from Evan Hewes Highway and New River Boulevard. The construction vehicles will access the site from the driveway on the east side of the site through the existing plant entrance.

The typical mechanical fitting crew size is anticipated to vary from 20 to 25 workers. The installation of the mechanical work will reach full production approximately three months into the construction period and last for approximately three months.

#### Electrical

Electrical work will include installation of the new electrical service to the site, new main switchboard, emergency generator, duct banks between plant areas and installation of switchboards, panelboards, and control panels.

The electrical work for the project will utilize conventional construction equipment including forklifts, loaders, excavators, vibro-compactors, and generators. Equipment and materials will be delivered to the site with access from Evan Hewes Highway and New River Boulevard. The construction vehicles will access the site from the driveway on the east side of the site through the existing plant entrance.

The typical mechanical fitting crew size is anticipated to vary from 20 to 25 workers. The installation of the mechanical work will reach full production approximately three months into the construction period and last for approximately three months.

#### Start-up, Testing, Commissioning, and Training

After all mechanical systems are installed, the individual unit processes will be started up and tested. When mechanical, electrical, and instrumentation components are confirmed operational, the complete plant will be tested as a unit and the treatment process started up. Concurrent with the start-up and testing process, the District staff will be trained for operations and maintenance of the facility.

Start-up, testing, and commissioning usually takes between four and six weeks. A project team of between four and eight workers, plus District staff and engineers will be involved in the process. When operations have been successfully demonstrated and effluent is in compliance, the facility will be considered substantially complete and water production can commence.

#### Operations and Maintenance

The operations and maintenance of the SWWTP will be typical of tertiary treatment works. The project site contains an existing wastewater treatment facility and also serves as the Seeley County Water District administration facility (main office and board room). All District staff (collections, distribution, water treatment, wastewater treatment, admin, management, etc.) report to the facility throughout the course of the typical daily routine. Public access for bill payment or attendance at board meetings takes place at the project site. It is anticipated that the District may need to increase staff by up to two dedicated staff specific to the upgraded (Tertiary) SWWTP operations and maintenance requirements.

The project does not expand treatment capacity but does add sophistication to the process. The existing plant is staffed between 7am and 5pm, Monday through Friday with designated staff "on-call" on the weekends for emergencies. The upgraded plant will contain necessary monitoring and alarm systems such that remote monitoring will be feasible. The need for an increased operational schedule is not anticipated.

New Long-term operational deliveries for the upgrades may include:

 Chemical (Sodium Hypochlorite) delivery - once per 2 or 3 months, scheduled if feasible to coincide with delivery to the nearby water treatment plant.

- Chemical (Citric Acid) delivery once or twice per year. Delivered in chemical tote on flathead truck.
- Additional equipment maintenance deliveries, several times per year, relative to upgraded equipment.
- Sludge removal, estimated at several truckloads annually. Sludge will be stockpiled on the site until sufficiently dried and then hauled to an appropriate landfill or disposal site.

The proposed facility upgrades are illustrated on Appendix 1 Figures Ap.1-1 and Ap.1-2 (at the end of this section).

#### 3. ENVIRONMENTAL INFORMATION

## 3.1 INTRODUCTION

This section presents a discussion of the existing resources and site conditions, the existing information about the potential environmental consequences of the SWWRF upgrades, any identified mitigation measures.

This analysis draws conclusions as to the likelihood that the SWWRF upgrades project could be accomplished with no significant environmental impacts, and identifies types of mitigation measures that could be enacted to reduce impacts or to ensure the project would not cause significant impacts. Because the potential for impacts in several technical areas would not occur, several of the areas normally studied in a Staff Assessment have been eliminated from this analysis. The areas not included are Transmission Line Safety and Nuisance, Facility Design, Power Plant Efficiency, and Power Plant Reliability.

#### 3.2 AIR QUALITY

This section presents a discussion of the potential impacts related to air quality during construction and operations of the SWWRF upgrades related to the SES Solar Two Project. The discussion below includes the affected environment, environmental consequences, cumulative impacts, mitigation measures, and applicable LORS. Public health is addressed separately.

#### **Environmental Setting**

The affected environment resulting from the upgrades at the SWWRF is the same as that described in Section C.1 in this SA/DEIS. The facility upgrades would be located 12 miles east of the proposed SES Solar Two project, and are located in the same air basin regulated by the same management district.

# **Environmental Impacts**

This section describes the potential air quality impacts from the upgrade to the SWWRF. A discussion of the potential emission sources during construction and operation of the upgrade to the SWWRF is presented in this section.

#### Construction Emissions

The primary emission sources during construction of the proposed SWWRF Improvements would include exhaust from heavy construction equipment and vehicles and fugitive dust generated in areas disturbed by grading, excavating, and erection of facility structures. The projected construction schedule is of a few months. Different areas within the proposed SWWRF site would be disturbed at different times over this period. Estimated land disturbance for construction activities is assumed to be five acres.

Fugitive dust emissions from the construction of the SWWRF would result from:

- · Site grading/excavation activities at the construction site;
- · Installation of new structures and water line; and
- · Onsite travel on unpaved surfaces.

Combustion emissions during construction would result from:

- Exhaust from the off-road construction equipments, including diesel construction
  equipment used for site grading, excavation, and construction of onsite structures,
  and water trucks used to control construction dust emissions;
- Exhaust from on-road construction vehicles, including pickup trucks and diesel trucks used to transport workers and materials around the construction site, and from diesel trucks used to deliver concrete, equipment, and construction supplies to the construction site; and,
- · Exhaust from vehicles used by workers to commute to the construction site.

The analysis conducted by Dudek for the Draft MND for the SWWRF upgrades identified measures to minimize dust emissions, including use of soil stabilizers, a high wind dust control plan, implementing limits to disturbance areas during high winds, disturbed areas stabilization, watering exposed surfaces and haul roads, covering stock piles, replacing vegetative ground cover in disturbed areas quickly, and reducing speeds on unpaved roads to less than 15 miles per hour (mph). These measures should be imposed as mitigation measures on the project to ensure less than significant impacts.

Construction equipment and vehicle exhaust emissions estimates based on equipment lists and construction scheduling information were not available at the time of submittal of this supplemental document. However, because of the short duration of the construction activities, the expected small construction equipment roster, and implementation and mitigation measures no significant impacts from the construction of the SWWRF are expected.

# Operations Emissions

The only new source of air pollution associated with operation of the upgrades to SWWRF would be one emergency diesel backup generator. The backup generator engine planned for the SWWRF would be no larger (and most likely smaller) than the generator planned for installation at the SES Solar Two facility, which is rated at 335 horsepower. Generator testing is project to follow the standard practice planned for the SES Solar Two Project, at 15 minutes per week for a total of 13 hours per year.

Operation at this level would result in emissions of all pollutants of less than 50 pounds per year (see Section C.1, page C.1-16).

The maximum emission rate of each pollutant from a generator similar to the SES Solar Two generator, are presented in Table Ap.1-1. It is expected that the emissions from the generator associated with the SWWRF Project will be lower. As shown in Table 2.2-1, these emissions are substantially lower than the thresholds of significance for project operations from the Imperial County Air Pollution Control District (ICAPCD) CEQA Air Quality Handbook, thus, no significant impacts are expected from the operations of SWWRF Project.

Table Ap.1-1

Maximum Predicted Backup Diesel Generator Emission Rates

Pollutant	Daily Emissions (lbs)	Annual Emissions (lbs)	ICAPCD Threshold of Significance Emissions (lb/day)
NO <sub>x</sub>	0.79	41.03	55
CO	0.06	3.17	550
VOC	0.03	1.44	55
SO,	0.02	1.15	150
PM <sub>10</sub>	0.01	0.58	150

Notes: Based on emissions from the Solar Two generator which is tested 15 minutes per week for a total of 13

hours per year.

CO = carbon monoxide

lb/yr = pounds per year

NO<sub>x</sub> = nitrogen oxide PM<sub>10</sub> = particulate matter less than 10 microns in diameter

PM<sub>10</sub> ≈ particulate ma SOx ≈ sulfur oxide

VOC = volatile organic compounds

#### Greenhouse Gas Emissions

In 2006, the California Assembly passed a law (AB32) directing the California Air Resources Board to develop regulations to achieve the goal of reducing statewide greenhouse gas (GHG) emissions to 1990 levels by 2020. Potential greenhouse gas emissions from the diesel generator associated with the upgrade to the SWWRF were calculated using the California Climate Action Registry protocol. The estimated annual greenhouse gas emissions from the diesel generator are 2.65 tonnes per year, although it is expected that the emissions from the generator associated with the SWWRF Project will be lower.

#### Odors

The upgrades to the SWWRF may have the potential to cause an increase in odorous activities, due to the tertiary treatment of additional wastewater. The existing facility already has odorous activities and generally small increases in odorous activities are not perceptible to most people (Dudek 2009). Thus, the change in odors from the SWWRF Project may not result in significant impacts.

#### Mitigation

Mitigation measures that are recommended for construction of the SWWRF upgrades include the dust control measures to limit fugitive dust emissions, as described in the Draft MND. Given the proximity of residences to the existing facility, if odors become objectionable, mitigation measures should be required. Odor reducing mitigation for wastewater treatment plants include chemical scrubbers to remove hydrogen sulfide and other sulfur compounds, scrubbers for ammonia removal using caustic/hypochlorite, and a gas capture system on anaerobic cells for odor control. Air sampling around the various treatment plant facilities can be used to ensure the odor control systems are in operation.

#### Conclusion

The SWWRF upgrade and associated activities will result in emissions due to construction equipment and fugitive particulate matter (dust) emissions from activity on unpaved surfaces. With comprehensive control measures such as those recommended by the mitigation measures incorporated into the MND, dust and equipment exhaust impacts would be reduced to a less than significant level.

# 3.3 BIOLOGICAL RESOURCES

This section presents a discussion of the potential impacts related to biological resources during construction and operations of the SWWRF upgrades related to the SES Solar Two Project.

# **Environmental Setting**

According to the Draft MND for the SWWRF upgrades (Dudek 2009), the SWWRF site includes only developed/disturbed land with limited to no vegetative growth, and discharges up to 0.15 cubic feet per second (cfs) of effluent to the New River through an unlined channel that is approximately 800 feet long and 50 feet wide (0.92 acre). However, according to the USFWS comment letter on the Draft MND, the unlined channel (Wildcat Drain) supports 2 acres of wetland habitat (February 2010).

The federally listed Yuma clapper rail (Rallus longirostris yumamensis), has been reported in marsh vegetation elsewhere in Imperial County; the nearest documented occurrence is about two miles north of the SWWRF near where the New River empties into the Salton Sea (Dudek 2009). Burrowing owl (Athene cunicularia) and vermillion flycatcher (Pyrocephalus rubinus) are also known from the general vicinity. The channel supports narrow-leaved cattail (Typha latifolia), salt cedar (Tamarix sp.), arrow weed (Pluchea sericea), and Emory's baccharis (Baccharis emoryr), but because of the small patch size of suitable habitat, it was considered sub-optimal for breeding use by Yuma clapper rail and other riparian bird species (Dudek 2009). Further information regarding the special status plant and animal species is provided in section C.2.4.1 of the SA/DEIS.

General reconnaissance surveys were conducted on the SWWRF site in May 2002 and July 2009, and no special-status species were detected. Wildlife species observed from previous surveys included yellow-rumped warbler (*Dendroica coronata*), song sparrow (*Melospize melodia*), house finch (*Carpodacus mexicanus*), western kingbird (*Tyrannus*)

verticalis), killdeer (Charadrius vociferous), red-winged blackbird (Agelaius phoeniceus), and lesser nighthawk (Chordeiles acutipennis) (Dudek 2009).

#### **Environmental Impacts**

The analysis conducted by Dudek for the Draft MND indicated that surface water is supplied to the wetland by agricultural return flows and underdrain flow from a separate drinking water treatment plant, and that this water will be adequate to maintain the wetland after water supply from the SWWRF, totaling 0.15 cfs, is discontinued (Dudek 2009). However, as was highlighted in comments on the Draft MND, the volume of the agriculture return flows and underdrain flow was not provided and the SWWRF MND/ Environmental Assessment (2003) stated that loss of effluent flows from the SWWTF could result in significant impacts to wetlands. A hydrologic study is necessary to quantify how withholding water from the emergent wetland will affect the wetland habitat and any listed species that may occupy the affected habitat, including the federally-listed endangered Yuma clapper rail. This study may identify significant impacts, but mitigation measures may be able to reduce the impacts to less than significant. Mitigation measures would include activities such as providing restoration and compensation for affected uirsidictional areas.

Focused surveys for sensitive bird species will be completed during the appropriate spring/summer survey periods in 2010 to determine whether the emergent wetland is occupied by sensitive species as part of the studies associated with the EIR for the SWMRF upgrades. The analysis conducted by Dudek for the Draft MND indicated that no sensitive species would be affected by the SWWRF improvements (Dudek 2009). However, numerous comments on the Draft MND expressed concern regarding impacts to sensitive species due to impacts to wetland habitat and the USFWS recommended completion of protocol level surveys for the Yuma clapper rail along the 2-acre channel wetland (February 2010). The results of the protocol level surveys may identify significant impacts and appropriate mitigation would be required.

#### Mitigation

The analysis conducted by Dudek for the Draft MND indicated that adequate water will remain to maintain the wetland after water supply from the SWWRF is discontinued and that no special status species would be affected (Dudek 2009). However, mitigation may be required that would include avoidance of native habitat disturbance during bird breeding season and construction noise abatement measures during the bird breeding season. Additionally, mitigation may be required that would provide restoration and compensation for affected jurisdictional areas should any be impacted by the SWWRF upgrades.

Mitigation to reduce impacts to bird species includes activities such as:

- conducting pre-construction surveys and monitoring for breeding birds;
- avoiding construction during avian breeding seasons;
- if construction must occur during breeding seasons, providing appropriate distances between construction work and active nests and ensure that noise levels are appropriate at the edge of nesting territories as determined by a qualified biologist in coordination with a qualified acoustician;

devising methods to reduce noise and disturbance in the vicinity such as installing
protective barriers between the nesting site and the construction activities.

Mitigation for affected jurisdictional areas would include activities such as:

- providing restoration and compensation for affected jurisdictional areas by creation, restoration, or preservation of suitable jurisdictional or equivalent habitat;
- in general, at least a 1:1 ratio of the mitigation would include creation of jurisdiction habitat so there would be no net loss of jurisdictional habitat;
- · maintenance and monitoring of the mitigation of habitat.

#### Conclusion

The SWWRF upgrade and associated activities would potentially result in impacts to wetlands and wetland dependant sensitive species, including the federally-listed endangered Yuma clapper rail. Further hydrologic study is required to complete the analysis. If the project would impact wetlands, comprehensive mitigation measures are available that would mitigate the impact to less than significant.

# 3.4 CULTURAL RESOURCES

This section presents a discussion of the potential impacts related to cultural resources during construction and operations of the SWWRF upgrades related to the SES Solar Two Project.

## **Environmental Setting**

Based on information contained in the Draft MND for the SWWRF Improvements (Dudek 2009), a cultural resources pedestrian survey and a cultural record search were conducted for the Final MND/Environmental Assessment for the Proposed Seeley Water/Wastewater Master Plans (2003), and no significant cultural resources were identified within the project area.

# **Cultural Resources Survey Results**

A records search was conducted February 18, 2009, for a quarter-mile radius around the centerline of the survey contdor for the waterline project, which included the existing SWWRF project site. The records search revealed that cultural resources investigations had been previously conducted for 11 projects and 21 cultural resource locations had been previously documented in the records search buffer area. Table Ap.1-2 lists the previously performed investigations within the water line records search buffer, which includes the SWWRF project site as it is within the buffer of the record search area. Table Ap.1-3 presents the cultural resources previously documented within the records search boundary. The record search for the waterline project covered a larger area than the SWWRF. No previously recorded cultural resources sites were documented within the boundaries of the SWWRF.

# Table Ap.1-2 Previously Performed Cultural Resources Investigations

Project Name	NABD#	Produced by	Produced for	Date
Archaeological Examination for the Seeley, California Wastewater Facilities Plan	1100070	Jay and Sherilee Von Werlhof Imperial Valley College Museum	Design Sciences	May 1976
Cultural Resource Investigation for 30 Proposed Asset Manage- ment Parcels in Imperial Valley, CA	1100301	Patrick Welsh	BLM	July 1983
Review of Alamosa PCS Site #82502020 County of Imperial, CA	1100757	Environmental Biologists, Inc/SBA	Imperial County, CA	September 2000
Cultural Resource Assessment AT&T Wireless Services Facility No. IM004, Imperial County, CA	1100804	Curt Duke, LSA Associates	GeoTrans Inc.	March 2002
Cultural Resources Survey and Assessment of a Cellular Phone Tower Replacement and Associ- ated Access road Along Old U.S. Highway 80 Near Dixieland, Imperial County, CA	1100820	Philip de Barros, Ph.D. Professional Archaeological Services	Phase One Inc.	May 2000
Section 106 consultation Request Cell Site CA-7 New Site # 58 Seeley, Imperial County, CA	1100916	Joseph M. Nixon, Ph.D., Tierra Environmental Services	BRG Consulting Inc.	May 2002
Archaeological Examination of A Proposed County Waste Disposal Site near Calexico, CA	1100071	Jay and Sherilee Von Werlhof	Department of Public Land Works, Imperial County	May 1976
Phase 1 Archaeological Survey of the Proposed Imperial Site, New Mental Health Treatment Facility Project	1101071	Mark C. Robinson, Applied EarthWorks, Inc.	State of California Real Estate Services Division	January 2000
Cultural Resources Study of the Mount Signal and Dixie Ranch Imperial County Prison Alterna- tives, Imperial County, CA	1101057	Andrew Pigniolo, ERC Environmental and Energy Services Company, Inc.	California Department of Corrections	January 1990
Volume I Phase II Archaeological Survey o the La Rosita 230 kV Interconnection Project	1100251	Cultural Systems Research, Inc.	San Diego Gas & Electric	November 1987
Cultural Resource Survey for the Seeley Water and Wastewater Treatment Master Plan Project, City of Seeley, Imperial County, CA	1101036	Joseph M. Nixon Ph.D. Tierra Environmental Services	BRG Consulting, Inc.	May 2002a

A cultural resource survey was previously conducted for the SWWRF Master Plan Project and included a field survey of 2.5 acres of the existing project site as well as a one-linear mile survey for associated facilities. The survey was negative and no cultural resources were identified (Nixon 2002a).

Table Ap.1-3
Previously Recorded Cultural Resource Sites

Site Name	Cultural Affiliation	Description	Comments
CA-IMP-321	Prehistoric	Cremation	Site location has not been verified since initial recording.
4-IMP-453	Prehistoric	Potter shards	Site location has not been verified since initial recording.
4-IMP-1425	Prehistoric	Isolated find - pottery sherd	
4-IMP-1426	Prehistoric	Village site – extensive pottery and lithic materials	Site location has not been verified since initial recording.
4-IMP-4193H	Historic	Refuse deposit	
4-IMP-4389	Prehistoric	Pottery scatter - pot drop	Site location has not been verified since initial recording.
4-IMP-4390H	Historic	Refuse deposit	Site location has not been verified since initial recording.
4-IMP-4391H	Historic	Refuse deposit	No further information available.
4-IMP-4602	Prehistoric	Isolate - basalt flake	Salton Buff; site location has not been verified since initial recording.
4-IMP-4603	Prehistoric	Isolate - basalt flake	
CA-IMP-7816H	Historic	Refuse deposit	Potentially related to the railroad; site location has not been verified since initial recording.
U.S. Highway 80	Historic	Linear highway	Reevaluated with the SES Solar Two Class III Cultural Resources Technical Report.
San Diego and Arizona Easter Railway	Historic	Linear railroad	Reevaluated with the SES Solar Two Class III Cultural Resources Technical Report.
P-13-009129	Prehistoric	Isolate – Brownware pottery sherd	
CA-IMP-8427	Prehistoric	Open camp with lithic tools and flakes, ceramics, and three features and groundstone	No further information available
P-13-009221	Prehistoric	Isolate – two secondary porphyry flakes	en yezoniane energe deline. Oznaden bezagisario
P-13-00922	Historic	Isolate - glass insulator cap	

Site Name	Cultural Affiliation	Description	Comments
CA-IMP-8658	Prehistoric	Temporary camp lithic tools and flakes, ceramics groundstone and a feature.	No further information available
P-13-009727	Prehistoric	Isolate-single gray metavolcanic flake	
CA-IMP-8729	Prehistoric	Lithic and ceramic scatter	No further information available
CA-IMP-8730	Prehistoric	Lithic ceramic scatter	No further information available

A survey buffer of 150 feet on either side of the waterline center was established for the waterline cultural resource survey. The waterline survey area did not include the SWWRF plant site. However, as addressed above, the plant site had previously been surveyed (Nixon 2002a) with negative results.

The result of the survey was the recordation of one previously recorded cultural resource site, three newly recorded cultural resource sites, and five newly recorded prehistoric isolated artifacts along the waterline route. The tabular results of the survey are presented in Table Ap.1-4. None of these sites are located in proximity to or within the boundaries of the SWWRF project area.

Table Ap.1-4
Cultural Resource Survey Results

Site Name	Cultural Affiliation	Description		
		Previously Recorded Site		
IMP-4391/H	Historic	Refuse deposit		
	The false	Newly Recorded Sites		
KRM- SLY-1	Historic	Linear site, 17 highway markers, 12 historic refuse deposit locations		
KRM-SLY-3	Prehistoric	Ceramic and lithic scatter		
KRM-SLY-5	Prehistoric	Possible open camp		
		Newly Recorded Isolates		
SLY-ISO-2	Prehistoric	Metavolcanic hammerstone		
SLY-ISO-4	Prehistoric	Tested metavolcanic cobble		
SLY-ISO-6	Prehistoric	Metavolcanic secondary flake		
SLY-ISO-7	Prehistoric	Sandstone mano fragment		
SLY-ISO-8	Prehistoric	Metavolcanic secondary flake		

# **Environmental Impacts**

The Class III pedestrian survey of The Seeley Water Line Extension Corridor results in the recording of three sites, one historic and two prehistoric; five isolated finds; and the reevaluation of one previously recorded site. One of the sites is recommended as requiring further investigation to determine if subsurface deposits exist and eligibility for nomination to the NRHP or the CRHR. The remaining sites are recommended as requiring no further work. Previously recorded site IMP-4391H was unevaluated. URS

recommends the site as not eligible for nomination to the NRHP or CRHR. None of these sites is within the boundaries of the SWWRF project area.

Because no previously recorded cultural resource sites were documented within the boundaries of the SWWRF and not new cultural resources sites were documented within the boundaries of the SWWRF, the proposed project is not expected to impact any cultural resources.

The potential for the project to impact cultural resources would be limited to undiscovered below-ground cultural deposits. It is possible that buried cultural deposits could be encountered during ground disturbing project activities including grading or any ground disturbance associated with new or modified treatment ponds.

#### Mitigation

Mitigation should include development of procedures for actions to be taken in the event of discovery of resources during construction. In the event of a site discovery during project implementation, all work would stop in the immediate area in order to afford time for documentation, evaluation, and consultation between the lead federal agency, the California State Historic Preservation Officer (SHPO), and all consulting tribes if a discovery is aboriginal in origin. Consultation with the above entities would ensue regardless of whether the discovery is located on private or federal lands. If consultation determines that the discovery is eligible for the NRHP, a consideration of effects should be undertaken pursuant to 36 CFR 800.5 of the National Historic Preservation Act (NHPA, 1966, as amended). If consultation results in a determination of adverse effects to a historic property, mitigation measures would be proposed and implemented following consultation with the California SHPO, the lead federal agency, the Advisory Council on Historic Preservation (ACHP), and all consulting Tribes, if necessary.

Types of mitigation measures that are typically used include evaluation of cultural resources, data recovery including sample excavation and/or surface artifact collection and site documentation and historical documentation, photography, collection of oral histories, architectural or engineering documentation, and preparation of a scholarly work.

#### Conclusion

The SWWRF upgrade and associated activities would potentially result in impacts to unknown cultural resources from construction activities. With mitigation measures such as those detailed above, impacts would be reduced to a less than significant level.

# 3.5 GEOLOGIC RESOURCES

This section presents a discussion of the potential impacts related to geologic hazards and resources during construction and operations of the SWWRF upgrades related to the SES Solar Two Project.

# **Environmental Setting**

The SWWRF upgrades would be located in the Imperial Valley region of the Salton Trough. The regional setting of the Imperial Valley region of the Salton Trough can be found in Section C.4.4.1 of the SA/DEIS. This region is primarily underlain by the lake deposits of the ancient Lake Cahuilla. Estimated peak ground acceleration at the SWWRF site would be 0.5g to 0.6g, and the nearest active fault line is Superstition Hills Fault (CPUC 2008).

The Imperial Valley experiences natural subsidence at a rate of nearly two inches per year at the center of the Salton Sea and decreasing toward zero near the United States/Mexico border (Imperial County 2006). This includes gradual, local setting of the earth's surface with little or no horizontal motion. It is generally uniform but local depressions have formed such as the Mesquite Sink (Imperial County 2006).

#### **Environmental Impacts**

Construction-related impacts to the geologic environment primarily are related to terrain modification (cuts, fills, and grading) and dust generation. No major unique geologic or physical features have been identified at the SWWRF site, as it would occur on an already disturbed site.

The project area is subject to ground shaking from nearby and distant earthquakes. Design criteria for the SWWRF would be in accordance with a design-level geotechnical report and California Building Code (2007) standards. Adequate design parameters for the facility would need to be determined through a site-specific evaluation by a Certified Engineering Geologist or Geotechnical Engineer. Impacts due to seismic hazards and soil conditions, such as subsidence, would be addressed by compliance with the requirements and design standards of the California Building Code.

#### Mitigation

Mitigation measures for geologic hazards and resources are described in Section C.4 for the SA/DEIS and include mitigation to any groundshaking impacts through facility design. No additional mitigation measures are expected to be required for the SWWRF upgrades.

#### Conclusion

The SWWRF upgrade and associated activities would potentially result in impacts from groundshaking. With mitigation measures such as those detailed above, impacts would be reduced to a less than significant level.

# 3.6 PALEONTOLOGICAL RESOURCES

This section presents a discussion of the potential impacts related to paleontological resources during construction and operations of the SWWRF upgrades related to the SES Solar Two Project.

#### **Environmental Setting**

As stated above, the SWWRF upgrades would be located in the Imperial Valley on the lake deposits of the ancient Lake Cahuilla. The Cahuilla Lake Beds are generally

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composed of thinly bedded, poorly sorted, fine-grained, light grayish-brown fluvial sediments intervening with a lacustrine sequence of tan and gray fossiliferous clay, silt, sand, and gravel. These sediments are widespread and were deposited during the last seven high stands of the ancient Lake Cahuilla, believed to have existed intermittently from 270 years ago to at least 6,000 years ago. Fossil remains discovered in the Cahuilla Lake Beds include freshwater diatoms, sponges, terrestrial plants, mollusks, fish, ostracodes, and small terrestrial vertebrates. The Cahuilla Lake Beds are determined to have a high potential for paleontological resources (CPUC 2008).

#### **Environmental Impacts**

The proposed construction and operations of the SWWRF upgrades is not likely to result in significant impacts to paleontological resources. The SWWRF upgrades would result in minor amounts of ground disturbance on already disturbed land. As with the proposed SES Solar Two site, the potential for exposure of paleontological resources would increase with depth of excavations. Although minimal excavations and ground disturbance would occur with the project upgrade, the project is located on the Ancient Lake Cahuilla which has a high potential for paleontological resources. Impacts to unknown paleontological resources would be significant without mitigation.

#### Mitigation

Mitigation measures for paleontological resources should be imposed, similar to those described in Section C.4 of the SA/DEIS. No additional mitigation measures are recommended based on this analysis for the upgrades to the SWWRF related to the SES Solar Two Project.

#### Conclusion

The SWWRF upgrade and associated activities are expected to result in less than significant impacts to paleontological resources.

# 3.7 HAZARDOUS MATERIALS MANAGEMENT

This section presents a discussion of the potential impacts hazardous materials handling during construction and operation of the SWWRF upgrades.

# **Environmental Setting**

The SWWRF upgrades would be located at the existing Seeley Wastewater Reclamation Facility. As with the proposed SES Solar Two project, the purpose of this section is to determine if the proposed upgrades could potentially cause significant impacts [pursuant to the California Environmental Quality Act (CEQA)] on the public from the use, handling, storage, or transportation of hazardous materials at the proposed project site.

Meteorological conditions at the SWWRF site would be similar to the conditions presented for SES Solar Two in SA/DEIS Section C.5.4.1. Terrain conditions would also be similar to the SES Solar Two site and essentially flat. The nearest populations and sensitive receptors would be located in the town of Seeley, which is immediately adjacent to the wastewater site. The nearest school, the Seeley Elementary School, is located approximately 1,900 feet east of the site.

#### **Environmental Impacts**

Small amounts of hazardous materials would be used during construction of the SWWRF upgrades and operation of the SWWRF. These materials are likely to be similar to those used at most construction projects including paint, cleaners, solvents, gasoline, diesel fuel, motor oil, welding gases, and lubricants. Any impact of spills or other releases of these materials would be limited to the site because of the small quantities involved, the infrequent use and hence reduced chances of release, and/or the temporary containment berms used by contractors.

The analysis conducted by Dudek for the Draft MND for the SWWRF upgrades did not identify any additional construction or operation related impacts to hazardous materials (Dudek 2009). The project proposes to use ultraviolet disinfectant for the tertiary treatment process, so minimal use of other disinfectants is expected. However, a list of the hazardous materials that would be used for the tertiary treatment would be required. As highlighted by the Department of Toxic Substances Control, if hazardous wastes would be generated by the operations of the project, the wastes would need to be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5).

#### Mitigation

Implementation of mitigation measures similar to those described in Section C.5 of the SA/DEIS would reduce impacts to less than significant levels. These include implementation of a Safety Management Program, with both engineering and administrative controls.

#### Conclusion

The SWWRF upgrade and associated activities would potentially result in impacts from hazardous materials release. With mitigation measures such as those detailed above, impacts would be reduced to a less than significant level.

# 3.8 PUBLIC HEALTH AND SAFETY

This section presents a discussion of the potential impacts related to public health during construction and operation of the SWWRF upgrades.

# 3.14 Environmental Setting

The meteorology and existing air quality would be the same for the SWWRF upgrades as for the proposed SES Solar Two project and are presented in Section C.6 in the SA/DEIS. The nearest residence is located less than 100 feet east of the proposed project on New River Boulevard. The nearest sensitive receptor is located approximately 1,900 feet east of the SWWRF upgrades, the Seeley Elementary School.

#### **Environmental Impacts**

This section describes the potential public health impacts from the upgrade to the SWWRF. A discussion of the potential emission sources during construction and operation of the upgrade to the SWRF is presented in this section. The SWWRF upgrade and associated activities will result in minor changes that will not cause significant construction or operations related impacts to public health.

# **Project Construction Emissions**

The only source of toxic air contaminants (TAC) emissions from the construction of the upgrades to the SWWRF would be the diesel particulate matter (DPM) in the exhaust from the diesel construction equipment. Due to the relatively short duration of the SWWRF upgrade construction phase (less than one year), and the expected small construction equipment roster, significant public health effects are not expected.

#### **Project Operations Emissions**

The only new source of TAC emissions associated with the upgrades to SWWRF will be one emergency diesel backup generator. The backup generator engine planned for the SWWRF would be no larger (and most likely smaller) than the generator planned for installation at the SES Solar Two facility, which is rated at 335 horsepower. If the generator associated with SWWRF Project is the same size and is tested the same amount, 15 minutes per week for a total of 13 hours per year, emissions of DPM will be less than 1 pounds per year. It is expected that the emissions from the generator associated with the SWWRF Project will be lower. The Section C.6 of the SA/DEIS concluded that no significant impacts are expected from the operation of the generator at the SES Solar Two Project, and while the environmental setting is not exactly the same, it is similar enough that no significant impacts from the operation of the generator at the SWWRF project are expected.

# Mitigation

No mitigation measures are expected to be required for the SWWRF upgrades for health and safety impacts.

# 3.9 SOIL RESOURCES

This section presents a discussion of the potential impacts related to soil resources during construction and operations of the SWWRF upgrades related to the SES Solar Two Project.

#### **Environmental Setting**

Two primary soil types occur at the SWWRF site. The two soil types are badlands, adjacent to the New River, and Holtville sitly clay. The construction activities are anticipated to occur within the area located on Holtville sitly clay. Holtville sitly clay's parent material includes Alluvium derived from mixed sources and the texture is silty clay. The depth to the water table is greater than 80 inches.

The Land Capability Class, or suitability for soil for most kinds of field crops, is 2s for irrigated lands and 7s for nonirrigated lands for the Holtville silty clay. Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat. The Badlands are classified as 8e, or areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes. Because the SSWRF site is located within the Imperial Irrigation District Boundaries, the site has available water for irrigation. Wind erodability for the Holtville Silty Clay is 4 (moderate erodibility) and it is 8 (low erodibility) for the Badlands. The erosion factor (K) is .28 (moderate) for the Holtville Silty Clay and .15 (low) for the Badlands. The Erosion

Harzard, Roads and Trails, is slight for the Holtville and severe for the Badlands. (SSR, 2010)

#### **Environmental Impacts**

As stated above, the construction required for the SWWRF upgrades would occur primarily on the Holfville silty clay. Some grading will be required for foundation of the proposed structures and some excavation, backfill, and compaction for plant facilities would be required. Because some soil disturbance would be required, the proposed SWWRF upgrades could result in a temporary increase in erosion and sedimentation. Potential storm water impacts could result if increased runoff flow rates and volume discharge from the site were to increase flooding and sedimentation downstream. The soils on the project site have a moderate to low wind erosion factor under normal conditions. While only minor amounts of erosion are expected, this could result in a significant impact if soil were to be displaced onto adjacent properties or the adjacent New River. Construction of the SWWRF upgrades would be required to comply with National Pollutant Discharge Elimination System (NPDES) regulations, a Storm Water Pollution Prevention Plan (SWPPP) and use Best Management Practices (BMPs) defined in the SWPPP. Adherence to these construction measures would ensure that impacts to soil resources would be less than significant.

#### Mitigation

The NPDES regulations, SWPPP, and standard BMPs include soil-erosion minimization measures such as:

- · exposed soil treatment including dust palliatives, soil bonding, and weighting agents;
- measures designed to prevent wind and water erosion including application of dust palliatives after ground disturbance;
- · erosion control drawings.

With compliance with the NPDES regulations, the SWPPP and use of standard BMPs, no additional mitigation measures would be recommended for the upgrades to the SWWRF related to the SES Solar Two Project.

# Conclusion

With the compliance with relevant regulations and BMPs, the SWWRF upgrade and associated activities are expected to result in no significant impacts to soils.

# 3.10 WATER RESOURCES

The purpose of this analysis is to update the currently provided information to evaluate potential impacts associated with implementation of SWWRF upgrades in relation to water resources and particularly the SWWRF outlet channel that is tributary to the New River (Wildcat Drain). Additionally, this analysis provides updated information regarding SWWRF permitted operational capacity and current effluent discharge rates. Note that under the current RWQCB Waste Discharge Requirements for SWWRF (RWQCB Order No. 2007-07-0036) the SWWRF is currently permitted for up to 250,000 gpd of secondary treated water. This is an increase from the previous permit (RWQCB Order No. R7-2002-0126) which provided a permitted capacity of 200,000 gpd of secondary

treated water. Proposed improvements to the SWWRF include upgrades to move from secondary to tertiary level treatment.

# **Environmental Setting**

The project site lies within the Imperial Subregion of the Colorado River RWQCB. There are no perennial or intermittent drainages on the project site. The closest perennial drainage to the project site is the New River and Wildcat Drain tributary. The New River was created in the early 1900's when the Colorado River overflowed a dike, and with the Alamo River further east, flowed through the Imperial Valley to form the Salton Sea. Currently, the highly polluted New River obtains its flow primarily from agricultural irrigation return. This Subregion is described in more detail in Section C.7 of the SADPIS.

The SWWRF site is located in the Imperial Valley Groundwater Basin. The Imperial Valley Groundwater Basin is discussed in detail in Section C.7 of the SA/DEIS. The nearest water body to the SWWRF is the New River, which is located immediately west of the SWWRF site. The New River water quality is discussed in Section C.7 of SA/DEIS. The SWWRF discharges to a minor tributary to the New River, locally referred to as Wildcat Drain. Additional discussion of the Wildcat Drain channel for the SWWRF discharge is provided in the Biological Resources section of this report.

As stated above, the facility operates under a New River discharge permit from the Regional Water Quality Control Board (RWQCB), Colorado River Basin which includes effluent limits for a number of pollutants, including Total Suspended Solids and Biochemical Oxygen Demand (Order No. R7-2007-0036, NPDES No. CA0105023). Over the past several years, discharge from the facility has exceeded these effluent limits, and the District has received notices of violations.

# **Environmental Impacts**

At this time, it is uncertain from a regional water resources perspective, what environmental consequences use of SWWRF recycled water as the sole water supply source for the SES Solar Two project would be. Previous analyses indicated a minor amount of flow reduction to the New River and Salton Sea as a result of SWWRF flow diversion (0.15% reduction of flow to the New River and 0.05% reduction to the Salton Sea). Additionally, the 150 to 200 cfs average annual flow at the border does not account for additional agricultural return flows to the New River between the border and the SWWRF (located approximately 15 miles downstream of the international border) which would reduce the anticipated percentage reduction in flows to the Salton Sea (URS 2009). However, a number of commenters expressed concerns with the reduction of water flow into the New River and Salton Sea. The Imperial Irrigation District stated that the loss would have potential direct impacts on the hydrology of the region and indirect impacts to biology and habitat, including loss or reduction of drain flows and any cumulative drainage impacts that might occur during the development and operation of the facility. The Imperial Irrigation District expressed concern with the impacts that the loss of water would have on the overall water conveyance system, water conservation programs, and Salton Sea restoration efforts. A hydrologic study of the redirected flow from the SWWRF upgrades is underway and would be required prior to any definite conclusions on the impacts.

Project components for use of SWWRF recycled water as the sole water supply source for the project include a water pipeline along Evan Hewes Highway to SWWRF as well as onsite distribution of the raw water supply. The proposed water pipeline and onsite distribution at the solar facility were analyzed in the SES Solar Two SA/DEIS published in February 2010.

#### Water Supply and Use

Based on existing, available information, the current average influent rate to the SWWRF is about 112,000 to 150,000 gpd (78-104 gpm or 125-168 aft), which is capable of meeting the anticipated project operations phase water demand of approximately 30,000 gpd (33 afy). The proposed SWWRF upgrades along with a proposed pipe delivery system from SWWRF to the Project and proposed onsite storage will be adequate to provide a reliable source of water for the SES Solar Two Project. There are not expected to be any reductions or temporary interruptions of water from the SWWRF. If an unforeseen interruption were to occur, SES Solar Two would temporarily suspend mirror washing operations.

#### Water Quality

Construction activities would involve earth disturbance that would increase the potential for erosion, but would not occur within any watercourses reducing the impact to water quality during construction. Mitigation was included into the Draft MND and incorporated in the SES Solar Two SA/DEIS to reduce any impacts to water quality during construction to less than significant. The mitigation measures are detailed in Section C.7.4.2 of the SA/DEIS.

As stated above, the current discharge from the facility has exceeded the effluent limits set by the RWQCB and has received notices of violations. The District proposed to carry out the project to upgrade the existing facility to Title 22 standards, with tertiary effluent suitable for unrestricted recycled uses. This upgrade is needed to help ensure that no discharges from the facility exceed established effluent limits in the future reducing impacts to water quality from project operations.

## Storm Water Runoff and Flooding Hazards

Storm water runoff from the site during construction could include excess sediment, trash, oils, solvents, paints, cleaners, spilled fuel, vehicle fluids and other construction-related contaminants from the construction activity. The applicant would be required to collect and remove construction waste, including hazardous wastes, according to a regular schedule. The site construction would require a Stormwater Pollution Prevention Plan which would specify Best Management Practices (BMPs) that would prevent all construction pollutants including erosion products from contacting stormwater, eliminate or reduce non-storm water discharges to waters of the nation, and provide for inspection and monitoring of BMPs.

#### Mitigation

The mitigation measures and other discussion presented in Section C.7.2 of the SA/DEIS are applicable. No additional mitigation measures are recommended based upon the SWWRF upgrades related to the SES Solar Two Project at this time. However,

as stated above, concerns regarding impacts to the hydrology of the region were expressed during the comment period for the MND resulting in a hydrologic study and further investigation. As such, additional mitigation to reduce regional effects to water supply may be required to reduce any impacts to water to less than significant levels. The SWWRF Upgrades would be required to comply with a number of Laws, Ordinances, Regulations, and Standards and would be required to attain a number of Agency permits prior to construction. The following table provides a summary of these.

Table 2.5.2 Summary of LORS – Water Resources

LORS	Requirements	Conformance Section	Administering Agency	Agency Contact
	F	ederal Jurisdiction		
CWA §402; 33 USC §1342; 40 CFR Parts 110, 112, 116	Requires NPDES permits for construction and industrial storm water discharges. Requires preparation of a SWPPP and Monitoring Program.	Coverage under NPDES industrial storm water permit maybe required. NOI for coverage under NPDES construction storm water permit will be filed before construction.	SWRCB and RWQCB	J. Carmona
CWA §311; 33 USC §1342; 40 CFR Parts 122-136	Requires reporting of any prohibited discharge of oil or hazardous substance.	Project will conform by proper management of oils and hazardous sub- stances both during con- struction and operation. If an accidental release or unintended spill occurs it will promptly be reported.	RWQCB and DTSC	J. Carmona
CFR, Title 40, Parts 124, 144 to 147	Requires protection of underground water resources.	Underground water resources will be protected due to the lined evaporation pond.	Environmental Protection Agency	
		State Jurisdiction		
CWC §13552.6	Use of potable domestic water for cooling towers and air conditioning is unreasonable use if suitable recycled water is available.	Recycled water will be the sole source of water for the project. No cooling towers area proposed.	SWRCB and RWQCB	J. Carmona / J. Snyder
California Constitution Article 10 §2	Avoid the waste or unreasonable uses of water. Regulates methods of use and diversion of water.	Project includes appro- priate water conservation measures, during both construction and operation.	SWRCB and RWQCB	J. Carmona
State Water Resources Control Board Resolution	Addresses sources and use of cooling water supplies for power plants that depend on inland waters for cooling and in areas subject to general water shortages.	Recycles water will be the sole source of water for the project. No cooling towers are proposed.	SWRCB and RWQCB	J. Carmont (RWQCB), J. Kassel (SWRCB)

LORS	Requirements	Conformance Section	Administering Agency	Agency Contact
Porter-Cologne Water Quality Act of 1972; CWS § 13000-14957, Division 7, Water Quality	Requires State and Regional Water Quality Control Boards to adopt water quality initiatives to protect state waters. Those criteria include identification of beneficial uses, narrative and numerical water quality standards.	Project will conform to applicable state water standards, both qualitative and quantitative, before and during operation. Applicable permits will be obtained from Regional Water Quality Control Board.	SWRCB and RWQCB	J. Camona
Title 22, CCR	Addresses the use of recycled water for cooling equipment.	Recycled water will be the sole source of water for the project. No cooling towers are proposed.	California Department of Health Services and RWQCB	J. Stone (DEH) / C. Raley (RWQCB)
The Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65), Health & Safety Code 25241.5 et seq.	Prohibits the discharge or release of chemicals known to cause cancer or reproductive toxicity into drinking water sources.	Project will conform to all state water quality standards, both qualitative and quantitative. Project will not discharge into any drinking water source. If an unintended spill occurs, reporting of spill will be prompt.	California Department of Health Services	J. Crisologo
CWC Section 461	Encourages the conservation of water resources and the maximum reuse of wastewater, particularly in areas where water is in short supply.	Recycled water will be the sole source of water for the project. No cooling towers are proposed.	SWRCB and RWQCB	J. Carmona / J. Snyder
CWC Section 5002	Requires a "Notice of Extraction and Diversion of Water" to be filed with the State Water Resources Control Board on or before March 1 of the succeeding year.	Notice will be filed as required by state law.	SWRCB and RWQCB	C. Raley (RWQCB), J. Kassel (SWRCB)
CWC Section 13751	Requires a "Report of Completion" to be filed with the State Water Resources Control Board within 60 days of well construction.	A groundwater well is not proposed.	SWRCB and RWQCB	J. Snyder / J. Carmona

LORS	Requirements	Conformance Section	Administering Agency	Agency Contact
California Public Resources Code §25523(a); 20 CCR §§1752, 1752.5, 2300-2309, and Chapter 2 Subchapter 5, Article 1, Appendix B, Part 1		Project will comply with the requirements of the Energy Commission to assure protection of water resources.	Energy Commission and RWQCB	J. Snyder and J. Carmona (RWQCB)
CWC §§13271-13272 ; 23 CCR §§2250-2260	Reporting of releases of reportable quantities of hazardous substances or sewage and releases of specified quantities of oil or petroleum products	No releases of hazardous substances are anticipated; however, Project will conform to all State water quality standards, both qualitative and quantitative. If an unintended spill occurs, reporting of spill will be prompt.	SWRCB and RWQCB	J. Snyder and J. Carmona (RWQCB)
CWC §13260-13269I 23 CCR Chapter 9	Requires the filing of a Report of Waste Dis- charge and provides for the issuance of WDRs with respect to the dis- charge of any waste that can affect the quality of the waters of the state.	An ROWD will be filed for the RO Unit discharge waste. The RO Unit will be constructed and moni- tored in accordance with RWQCB requirements.	SWRCB and RWQCB	J. Snyder and J. Carmona (RWQCB)
CEQA, Public Resources Code §21000 et seq.; CEQA Guide- lines, 14 CCR §15000 et seq.; Appendix G	The CEQA Guidelines (Appendix G) contain definitions of projects that can be considered to cause significant effects to water resources.	Project will comply with the requirements of the Energy Commission to assure protection of water resources.	Energy Commission	
Title 27, CCR Division 2, §20375, SWRCB – Special Requirements for Surface Impoundments (C15:§2548)	This regulation governs the design requirements for surface impoundments.	The evaporation pond for wastewater disposal will be designed and operated in accordance with the requirements of this section.	SWRCB and RWQCB	J. Snyder and J. Carmona (RWQCB)
		ocal Jurisdiction		
Imperial County Ordinance, Title 9, §91605.00– 91605.06	These codes regulate flood hazard reduction.	The Project will be designed by a licensed engineer and meet all floodplain design standards.	Imperial County	P. Valenzuela

LORS	Requirements	Conformance Section	Administering Agency	Agency Contact
Imperial County Ordinance, Title 9, §90515.00 – 90515.11	The codes classify the Project as light industrial development and regu- lates its uses.	The Project will conform to all code standards.	Imperial County	P. Valenzuela
Imperial County APCD, Regulation VIII, Fugitive Dust Rules		The Project will conform to all code standards.	Imperial County	

Source: URS Corporation, 2008.

Notes: APCD = Air Pollution Control District

CEQA = California Environmental quality Act CFR = Code of Federal Regulations CWA = Clean Water Act

CWC = California Water Code

LORS = Laws, Ordinances, Regulations, and Standards

NOI = Notice of Intent

NPDES = National Pollutant Discharge Elimination System RWQCB = Regional Water Quality Control Board

SWRCB = State Water Resources Control Board SWPPP = Storm Water Pollution Prevention Plan

USC = United States Code

Table 2.5-3
Agency Contact List for LORS – Water Resources

Agency	Contact	Title	Telephone
California Regional Water Quality Board, Colorado River Basin Region	John Carmona	NPDES, 401 Certification, Storm Water	760-346-7491
California Regional Water Quality Board, Colorado River Basin Region	Jennie Snyder	Chapter 15 and Non-Chapter 15	760-776-8962
State Water Resources Control Board	Jim Kassel	Water Rights	916-341-5446
California Department of Health Services	Jeff Stone	Recycled Water	805-566-9767
California Department of Health Services	Joseph Crisologo	Water Security	213-580-5723
Imperial County Planning/Building Development Department	Patricia A. Valenzuela	Planner II	760-482-4320
California Department of Water Resources, Division of Planning and Local Assistance, Southern District	Tim Ross		818-500-1645

Source: Colorado River Basin RWQCB, 208; CDPH, 2008a, CDPH, 2008b (References per Section 5.5 of Project AFC)

#### Conclusion

At this time it is uncertain whether the SWWRF upgrade and associated activities would result in significant impacts to water. Additional hydrologic studies are required.

#### 3.11 LANDUSE

This section presents a discussion of the potential impacts related to land use during construction and operations of the SWWRF upgrades related to the SES Solar Two Project.

#### **Environmental Setting**

The SWWRF upgrades would occur on the SWWRF site. This site is dedicated to an industrial use and is identified as an urban area by the Imperial County Land Use Plan (2007). The Seeley Elementary School is located approximately 1,900 feet east of the SWWRF upgrades.

Residential housing is located immediately east of New River Boulevard, less than 100 feet from the SWWRF property boundary. However, the upgrades to the SWWRF would occur on the western side of the property.

The town of Seeley is surrounded by agricultural lands. The New River is located west of SWWRF site

No wilderness areas, recreation areas, nor agriculture lands occur on site. No recreational areas are located within 1,000 feet of the SWWRF site.

## **Environmental Impacts**

The SWWRF upgrades would not impact agricultural or range lands, nor would they impact recreation or wilderness. Because the proposed upgrades would occur entirely within the boundaries of the existing SWWRF, they would not physically divide an established community, nor conflict with any land use plans or policies. Impacts to nearby residences related to construction noise, traffic, and air emissions (dust) are addressed in other sections of this analysis.

#### Mitigation

No mitigation measures appear to be required for land use impacts resulting from the upgrades to the SWWRF.

# **LORS Compliance**

The LORS are presented in Section C.8 of the SA/DEIS. No additional LORS are recommended for the upgrades to the SWWRF related to the SES Solar Two Project.

# Conclusion

The SWWRF upgrade and associated activities are expected to result in no significant impacts to land use.

# 3.12 NOISE AND VIBRATION

This section presents a discussion of the potential impacts related to noise during construction and operations of the SWWRF upgrades related to the SES Solar Two Project.

#### Environmental Setting

Community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions. Community noise is constantly changing throughout the day due to short duration single event noise sources, such as aircraft flyovers, vehicle passbys, sirens, etc.

The SWWRF is located in a rural environment with expected low ambient noise. The New River is located west of the project, and the community of Seeley is located immediately east of the project. The nearest sensitive receptors are located on New River Boulevard, less than 100 feet east of the project site.

#### **Environmental Impacts**

Based on information provided in Section 4.2.11 of the Draft MND for the SWWRF Improvements (Dudek 2009), construction of upgrades at the SWWRF would be expected to cause temporary increases in ambient noise levels at nearby residential receivers. Upgrade construction would occur during allowable hours as dictated by the Imperial County Noise Ordinance, and would be temporary in nature. However, because the nearest sensitive receptors are less than 100 feet from the property boundaries mitigation similar to the mitigation for the proposed SES Solar Two property would be required to mitigate impacts to less than significant.

The MND does not provide information regarding the existing operational noise impacts of the SWWRF nor the expected increase in noise from the SWWRF upgrades. Without this information it is not possible to estimate if any increases in noise would occur at the nearest sensitive receptors. However, if there were a significant increase of 5dBA or greater at the nearest sensitive receptors, mitigation would likely be required.

# <u>Mitigation</u>

The mitigation measures for temporary impacts related to construction presented in Section C.9 would require notification of all residents within a 2 mile range at least 15 days prior to the start of construction. Additionally, the project owner would be expected to establish a telephone number for use of the public to report any undesirable noise conditions associated with construction.

If operations of the SWWRF upgrades resulted in a significant increase in ambient noise impacts at the nearest sensitive receptors, mitigation to reduce this impact to less than significant would include noise reduction activities such as building a noise wall surrounding the site.

# Conclusion

With the implementation of mitigation measures to reduce noise at nearby residences, if determined to be required, the SWWRF upgrade and associated activities are expected to result in no significant impacts to noise.

# 3.13 SOCIOECONOMICS

This section presents a discussion of the potential impacts related to socioeconomics during construction and operations of the SWWRF upgrades related to the SES Solar Two Project.

# **Environmental Setting**

The SWWRF is located in the town of Seeley in Imperial County. The demographic characteristics of Imperial County are described in the Socioeconomics and Environmental Justice section of the PSA/DEIS.

# **Environmental Impacts**

Because of the limited population in the town of Seeley, construction workers would most likely be from larger nearby cities such as El Centro. Approximately 30 to 40 workers would be required during peak work days with an average of approximately 20 workers for the six to ten month construction period. While there is limited housing in the town of Seeley, workers could easily commute from cities and towns within the El Centro region. Because of the limited number of workers required during for the project, and the available workers and high unemployment rate, it is expected that there would be no potentially significant socioeconomic impacts.

#### Mitigation

No additional mitigation measures are recommended based on this analysis for the upgrades to the SWWRF related to the SES Solar Two Project.

# Conclusion

The SWWRF upgrade and associated activities are expected to result in no significant impacts to socioeconomic resources.

# 3.14 TRAFFIC AND TRANSPORTATION

This section presents a discussion of the potential impacts related to traffic and transportation during construction and operations of the SWWRF upgrades related to the SES Solar Two Project.

# **Environmental Setting**

The SWWRF upgrades project is located at 1898 West Main Street in Seeley, California. The main access road would be the New River Boulevard off of Evan Hewes Highway. Additional roads likely to be used include Drew Road and Interstate 8. The Evan Hewes Highway and Interstate 8 are discussed in Section C.11.4.2 of the SA/DEIS. New River Boulevard and Drew Road are local roads in the Seeley region.

No public transportation facilities, or designated bicycle and pedestrian facilities, airport, or railroads are in the nearby vicinity. Residential housing is located along Main Street and as such, it is likely that Main Street is used by bicycles and pedestrians.

#### **Environmental Impacts**

Construction would result in a slight increase in traffic associated with the delivery of equipment and construction workers. While the exact number of vehicle trips that would be required for the project is unknown, there would be an average of 20 workers commuting to the construction site with a peak number of between 30 and 40 workers. Additionally, delivery trucks would be required at each phase of the construction as detailed above in the project description. Because this increase in traffic would be minor, it is likely that the roads would remain within the Level of Service thresholds identified by the local jurisdictions. However, a traffic study would be required to ensure this is the case. Additional mitigation would likely be required to ensure that no impacts to roads would be caused by the additional traffic and use of heavy vehicles for delivery. Operations of the project is expected to result in a very minor increase in yearly traffic from the maintenance activities includes scheduled chemical deliveries, additional maintenance deliveries, and sludge removal. This minor traffic is not expected to result in additional impacts to traffic or transportation.

#### Mitigation

Mitigation measures similar to those presented in Section C.11 of the SA/DEIS would reduce impacts related to traffic and transportation to less than significant. The mitigation measures would include activities such as:

- providing a copy of the construction traffic control plan to the town of Seeley and Imperial County for review and approval prior to construction;
- informing Imperial County and service providers of the schedule of delivery of heavy equipment and building materials;
- · ensuring adequate access for emergency vehicles; and
- documenting the existing condition of the primary roadways that would be used by construction workers and heavy vehicle deliveries prior to construction and either directly reconstructing or reimbursing the County for needed repairs.

# Conclusion

The SWWRF upgrade and associated activities are expected to result in no significant impacts to traffic and transportation resources.

# 3.15 VISUAL RESOURCES

This section presents a discussion of the potential impacts related to visual resources during construction and operations of the SWWRF upgrades related to the SES Solar Two Project.

# Environmental Setting

The SWWRF is located at 1898 West Main Street in Seeley, California which is an existing industrial facility located on the western edge of the town of Seeley. The SWWTP is designated as a Government/Special Public use, according to the Seeley Urban Area Plan (Dudek 2009). It is surrounded by agriculture lands to the north and south and residential housing immediately east. The New River is located immediately west of the project.

# **Environmental Impacts**

The SWWRF upgrades would require up to ten months of construction and would result in modification of two existing treatment ponds, conversion of two existing treatment ponds to in-ground earthen basins, an onsite pump station, a new backup, and open-air drying beds. The construction would occur at an already existing water treatment facility with similar baseline considers and would not result in taller structures than currently occur on site. Additionally, minimal changes to the existing landscape would be expected from the SWWRF upgrades. As such, no significant impact would be expected and mitigation similar to the mitigation required for the proposed SES Solar Two Project would reduce the impacts to less than significant.

# Conclusion

The SWWRF upgrade and associated activities are expected to result in no significant impacts to visual resources.

#### 3.16 WASTE MANAGEMENT

This section presents a discussion of the potential impacts from waste management during construction and operation of the SWWRF upgrades.

# **Environmental Setting**

According to the California Department of Toxic Substances Control, State Environmental Database Envirostor, no existing hazardous releases occurred within a one miles radius of the SWWRF upgrades site. Agriculture lands are located north and south of the project and it is possible that the region has been contaminated by agriculture residues. Additionally, as mentioned by the Imperial County Department of Toxic Substances Control, prior to any construction any previously contaminated sites must be identified. As such, it is likely that a Phase 1 Environmental Site Assessment report would be required.

# **Environmental Impacts**

Small amounts of non-hazardous and hazardous wastes could be generated during construction of the SWWRF upgrades. Waste generated during construction will be segregated, where practical, for recycling. Non-hazardous waste that cannot be recycled will be placed in covered dumpsters and removed on a regular basis by a certified waste handling contractor for disposal at a Class III landfill. Hazardous waste generated during construction will be taken offsite for recycling or disposal by a permitted hazardous waste transporter to a permitted treatment, storage, and disposal facility or Class I landfill.

Small amounts of non-hazardous and hazardous waste could be generated during operation of SWWRF. In addition, operation of the SWWRF will generate dried sludge that will require disposal in a landfill. Without a comprehensive program to manage hazardous wastes and a hazardous waste generator identification number (required by law for any generator of hazardous wastes), the project could result in a significant impact. The types of mitigation presented below would reduce this impact to a less than significant level.

# **Mitigation**

Mitigation measures as described in Section C.14 would provide waste management procedures for handling non-hazardous and hazardous wastes and would likely reduce impacts to less than significant levels.

#### Conclusion

The SWWRF upgrade and associated activities are expected to result in no significant impacts to waste management.

# 3.17 WORKER SAFETY AND FIRE PROTECTION

This section addresses safety and health issues and describes or outlines systems and procedures that provide occupational safety and health protection for the Project workers, proposed worker safety mitigation methods to minimize impacts to workers, and applicable LORS. All applicable elements of the Title 8 California Code of Regulations (CCR), General Industry Safety Orders (GISO), Construction Safety Orders (CSO), and Electrical Safety Orders (ESO), are addressed in Section C.15 of the SADEIS.

#### Environmental Setting

As with the proposed SES Solar Two Project, fire support services to the SWWRF upgrades site would be provided by the EI Centro Fire Department (EFD) located at 900 South Dogwood in EI Centro. The response time to the SWWRF site would be less than to the Solar Two facility from the EFD, less than 30 minutes. The EFD would also respond to hazardous materials incidents at the Solar 2 facility.

#### **Environmental Impacts**

Construction, operation, and maintenance activities may expose workers to the hazards identified in Section C.15 of the SES Solar Two SA/DEIS. Exposure to these hazards can be minimized through adherence to appropriate engineering, design criteria and administrative controls, use of applicable personal protective equipment (PPE), and compliance with all applicable health and safety LORS. The programs, regulations, and hazards such as those described in SECT C.15 encompass a comprehensive health, safety, and fire prevention program and an accident/injury prevention protection program intended to ensure healthful and safe operations at the Project site. The upgrades to the SWWRF will not create additional construction or operation related impacts to worker safety.

To protect the health and safety of workers during construction and operation activities, the SWWRF upgrade Project will ensure compliance with a Health and Safety Program, and all federal, state and local health standards that pertain to worker health and safety. Similar to the proposed SES Solar Two project, it would be appropriate for a solar plant at the Agricultural Lands alternative site to provide a Project Demolition and Construction Injury and Illness Prevention Program and a Project Operations Safety and Health Program in order to ensure adequate levels of industrial safety. The Imperial County fire department would be contacted to assure that the level of staffing, equipment, and response time for fire services and emergency medical services are adequate.

#### Mitigation

Mitigation similar to that required for the SES Solar Two Project, presented in Section C.15, including requiring a copy of the Project Construction Safety and Health Project be submitted to the agency with jurisdiction over the project would reduce impacts to less than significant.

#### Conclusion

The SWWRF upgrade and associated activities are expected to result in no significant impacts to worker safety and fire protection.

#### 3.18 CUMULATIVE IMPACTS

Section 15126.2(d) of the CECA Guidelines states that a cumulative impact should consider"...the ways in which the proposed project could foster economic or population growth, or the construction additional housing either directly or indirectly, in the surrounding environment." For NEPA, the purpose of cumulative impact analysis is to identify past, present, and reasonably foreseeable actions in the vicinity of the SWWRF that could affect the set of resources examined for direct and indirect impacts.

# **Environmental Setting**

The affected environment for Cumulative Impacts was discussed in Section B.3 of the SES Solar Two SA/DEIS and included the SWWRF. Supplemental cumulative information includes an estimate of impacts for Projected Urban Development for eastern San Diego and Imperial County completed by the California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program (Cal DLRP [2009]). The CA DLRP projections are based on extrapolations of current population and urban development trends. In the supplemental cumulative analysis, results from the Cal DLRP study are used to illustrate past, present and future urban development from 1984 to 2020 in the area surrounding the SWWRF. The forecast of urban development was used to define the past, present, and future geographic extent of "urban" types of development including residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures such as the SWWRF upgrade.

# **Environmental Impacts**

The Supplemental Cumulative Analysis found that urban development in Imperial County is expected to increase by about 19,000 acres between 2006 and 2020. Renewable energy development in Imperial County is expected to change the land use status of about 34,000 acres during that same time period. Based on these forecasts, the total estimated "developed" land area in Imperial County is expected to increase from about 1 percent to more than two percent by 2020, essentially doubling the developed land area in 14 years. This rate of development is much faster than in the past and renewable energy development is the major contributor to the acceleration.

The Cumulative analysis for the SWWRF upgrades would be similar to the Cumulative Analysis for the SES Solar Two project, presented in Sections C and D of the SA/DEIS. However, as stated above, further study is required to comprehensively analyze the potential for more extensive regional effects related to hydrological impacts of the SWWRF upgrades in order to accurately characterize cumulative impacts.

#### 4. CONCLUSION

While it is expected that the majority of the environmental impacts that would result from the SWWRF project would be less than significant or reduced to less than significant with mitigation, further studies would be required to conclude with certainty that the project would not result in significant impacts to biological resources, specifically impacts to wetlands and wetland dependent species, and to water resources.

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### BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA 1516 NINTH STREET, SCRAMBINTO, CA 95814 1-800-822-8228 – WWW.ENERGY, CA GOV

APPLICATION FOR CERTIFICATION FOR THE IMPERIAL VALLEY SOLAR PROJECT (formerly known as SES Solar Two Project)
IMPERIAL VALLEY SOLAR, LLC

Docket No. 08-AFC-5 PROOF OF SERVICE (Revised 3/9/10)

APPLICANT
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INTERVENORS
California Unions for Reliable
Energy (CURE)
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Loulena Miles, Marc D. Joseph
Adams Broadwell Joseph &
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#### **DECLARATION OF SERVICE**

I. <u>Maria Santourdijan</u>, declare that on <u>March 18, 2010</u>, I served and filed copies of the attached, <u>Appendix 1 Seeley Wastewater Reclamation Facility Improvements</u>, dated, <u>March 18, 2010</u>. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:

[http://www.energy.ca.gov/sitingcases/solartwo/index.html].

x sent electronically to all email addresses on the Proof of Service list;

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

x by personal delivery:

#### FOR SERVICE TO ALL OTHER PARTIES:

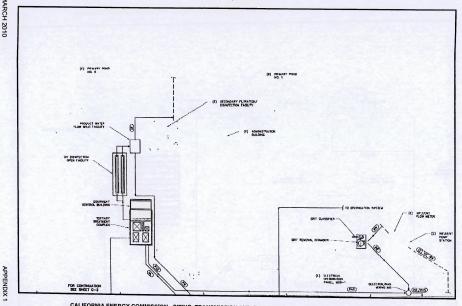
x	by delivering on this date, for mailing with the United states Postal service with inst-class busage interest fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses NOT marked 'email preferred.'
AND	
	FOR FILING WITH THE ENERGY COMMISSION:
х	sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (preferred method);
OR	
	depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION Attn: Docket No. <u>08-AFC-5</u> 1516 Ninth Street, MS-4 Sacramento, CA 95814-5512 docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

Originally Signed by Maria Santourdjian

APPENDIX 1 - FIGURE 1 SWWRF Upgrades Site Plan



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, MARCH 2010 SOURCE: Dudek 2009

## Appendix F Government-to-Government Consultation

This appendix provides the documentation regarding Tribal contacts for the Imperial Valley Solar (IVS) project as follows:

- Table F-1. Documentation of Tribal Contacts in 2008
- Table F-2. Documentation of Tribal Contacts in 2009
- Table F-3, Documentation of Tribal Contacts from January 2010 through April 2010
- Table F-4, Documentation of Tribal Contacts from May 2010 through June 2010

All Tribes and persons who were contacted and participated in this consultation are listed in the first column in all three tables. However, in some cases, contact/consultation occurred only in 1 or 2 years; therefore, there is no contact/consultation noted for the years in which no contact/consultation with that Tribe or person occurred. However, all Tribes and persons listed in the first column in each table participated in the process in at least 1 year between 2008 and 2010.

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Table F-1 Documentation of Tribal Contacts in 2008

Contact & Tribe	BLM Letter 1/8/08	Tribe Letter Response 2/19/08	Face- to-Face Mtg 8/19/08	Tribe Letter Response 8/28/08	Face- to-Face Mtg 10/9/08	BLM Letter 11/11/08	Field Visit 11/12/08	Follow- up Call 11/17/08	Follow- up Call 12/12/08
Campo Band of Kumeyaay	Indians	Maria de Maria							10000
H. Paul Cuero, Jr., Chairperson	х								
Fidel Hyde, EPA Director	Х								
Monique LaChappa, Chairperson				x	х	х		х	х
Lisa Gover, Tribal Administrator/EPA Director	Marying				х	х		х	х
Cocopah Indian Tribe					-				
Sherry Cordova, Chairperson	х					х		х	х
Jill McCormick, Cultural Resources Manager	х					х	х	х	х
Ewilaapaayp Band of Kum	eyaay Ind	ians							
Robert Pinto, Sr., Chairperson	х					х		х	х
Will Micklin, Executive Director	х					х		х	х
Michael Garcia, Vice- Chairman, EPA Director	х		275			х		х	х
Jim Robertson, Cultural Resources Coordinator									
Fort Yuma Quechan Tribe	London	Leading the second			MARKET P	PER ETIOR	- Leta aids	red increase	- ISlanda
Michael Jackson, Sr., President	x	Tage	io Like	Factor	ic-Edes	х		х	х

Contact & Tribe	BLM Letter 1/8/08	Tribe Letter Response 2/19/08	Face- to-Face Mtg 8/19/08	Tribe Letter Response 8/28/08	Face- to-Face Mtg 10/9/08	BLM Letter 11/11/08	Field Visit 11/12/08	Follow- up Call 11/17/08	Follow- up Call 12/12/08
Bridget Nash-Chrabascz, Historic Preservation Officer/Cultural Committee Coordinator	х	х	х			x		x	х
Lorey Cachora									
Fort Yuma Quechan Tribe-	Ah-Mut P	ipa Foundatio	n						
Preston Arroweed									
Jamul Indian Village									
Kenneth Meza, Sr., Chairperson									
Jesse Pinto									
Kwaaymii Laguna Band of	Mission I	ndians							
Carmen Lucas	X					х	Х	Х	X
La Posta Band of Kumeya	ay Indians	3		L					
Gwendolyn Parada, Chairperson	х					х		х	х
James Hill, EPA Director	Х								
Bernice Paipa, Environmental Coordinator/Kumeyaay Cultural Repatriation Committee									
Manzanita Band of Kumey	aay Indiar	ns			-				
Leroy Elliott, Chairperson	X					Х		Х	Х
Keith Adkins, Environmental Coordinator	х					х		х	х

Contact & Tribe	BLM Letter 1/8/08	Tribe Letter Response 2/19/08	Face- to-Face Mtg 8/19/08	Tribe Letter Response 8/28/08	Face- to-Face Mtg 10/9/08	BLM Letter 11/11/08	Field Visit 11/12/08	Follow- up Call 11/17/08	Follow- up Call 12/12/08
Nick Elliott, Environmental Coordinator	х					х		х	х
San Pasqual Band of Dieg	ueno India	ans							
Allen Lawson, Jr., Chairperson Dave Toler, Councilman									
Kristie Orosco, Environmental Coordinator									
Santa Ysabel Band of Dieg	ueno Indi	ans							
Johnny Hernandez, Chairperson									х
Clint Linton, Red Tail Monitoring and Research, Inc.							x		х
Ron Christman									
Rodney Kephart									
Torres-Martinez Desert Ca	huilla Indi	ans		L.					
Raymond Torres, Chairperson	х					х			х
Diana Chihuahua, Cultural Resources Coordinator						х		x	х
Alberto Ramirez, Environmental Coordinator						x		х	х

Table General Note: All Tribes and persons who were contacted and participated in the consultation are listed in the first column in Tables F-1 through F-4. However, in some cases, contact/consultation occurred only in 1 or 2 years; therefore, there is no contact/consultation noted for the years in which no contact/consultation with that Tribe or person occurred. However, all Tribes and persons listed in the first column in each table participated in the process in at least 1 year between 2008 and 2010.

Table F-2 Documentation of Tribal Contacts in 2009

Contact & Tribe	Tribe Letter Response 3/23/09	Face-to-Face Mtg 7/10/09	BLM Letter 11/6/09	Follow-up Calls and Emails 11/21/09-12/1/09	Face-to-Face Mtg 12/4/09
Campo Band of Kumeyaay	Indians				
H. Paul Cuero, Jr., Chairperson					
Fidel Hyde, EPA Director					
Monique LaChappa, Chairperson			х	x	
Lisa Gover, Tribal Administrator/EPA Director			x	x	
Cocopah Indian Tribe					
Sherry Cordova, Chairperson			х	х	
Jill McCormick, Cultural Resources Manager			х	х	х
Ewijaapaayp Band of Kum	eyaay Indians				
Robert Pinto, Sr., Chairperson			x	х	
Will Micklin, Executive Director			х	x	
Michael Garcia, Vice- Chairman, EPA Director			х	X	
Jim Robertson, Cultural Resources Coordinator					х
Fort Yuma Quechan Tribe			L		
Michael Jackson, Sr., President	19.00	m leave	x	x	cum love

Contact & Tribe	Tribe Letter Response 3/23/09	Face-to-Face Mtg 7/10/09	BLM Letter 11/6/09	Follow-up Calls and Emails 11/21/09-12/1/09	Face-to-Face Mtg 12/4/09
Bridget Nash-Chrabascz, Historic Preservation Officer/Cultural Committee Coordinator		x	x	x	onge vortug brose kompute posturo
Lorey Cachora					
Fort Yuma Quechan Tribe-	Ah-Mut Pipa Fou	ndation			10 This to 2 (1-
Preston Arroweed				X	Х
Jamul Indian Village				The second secon	
Kenneth Meza, Sr., Chairperson					
Jesse Pinto					X
Kwaaymii Laguna Band of	Mission Indians				
Carmen Lucas			X	X	X
La Posta Band of Kumeya	ay Indians			1	
Gwendolyn Parada, Chairperson			х		
James Hill, EPA Director					
Bernice Paipa, Environmental Coordinator/Kumeyaay Cultural Repatriation Committee	tood jirqisare			x	
Manzanita Band of Kumey	aay Indians				
Leroy Elliott, Chairperson			X	X	
Keith Adkins, Environmental Coordinator	onse tonghue		x	x	
Nick Elliott, Environmental Coordinator	Resolutes	E MIG ATTENDA	a significant	Elements marginalism	x

Contact & Tribe Lett Respons 3/23/09		Face-to-Face Mtg 7/10/09	BLM Letter 11/6/09	Follow-up Calls and Emails 11/21/09-12/1/09	Face-to-Face Mtg 12/4/09
San Pasqual Band of Dieg	ueno Indians				
Allen Lawson, Jr., Chairperson			х	х	
Dave Toler, Councilman			X	X	
Kristie Orosco, Environmental Coordinator					
Santa Ysabel Band of Dieg	ueno Indians				
Johnny Hernandez, Chairperson			х	x	
Clint Linton, Red Tail Monitoring and Research, Inc.			x	x	
Ron Christman			X		
Rodney Kephart				X	
Torres-Martinez Desert Ca	huilla Indians				
Raymond Torres, Chairperson					
Diana Chihuahua, Cultural Resources Coordinator	х				
Alberto Ramirez, Environmental Coordinator					

Table General Note: All Tribes and persons who were contacted and participated in the consultation are listed in the first column in Tables F-1 through F-4. However, in some cases, contact/consultation occurred only in 1 or 2 years; therefore, there is no contact/consultation noted for the years in which no contact/consultation with that Tribe or person occurred. However, all Tribes and persons listed in the first column in each table participated in the process in at least 1 year between 2008 and 2010.

Contact & Tribe	1/15/10	Response 2/4/10	Tribe Letter Response 2/24/10	Follow-up Email 3/1/10	BLM Latter 3/11/10	Follow-up Email 3/12/10	Fotow-up Emzil 3/26/10	BLM Letter 3/29/10	Follow-up Emer
Campo Band of Kumayaay Ind	ions						0.80-10	04010	- WINTE
Charperson									
Fidel Hyde, EPA Director							-		
Manague LeChappia, Chalgarsion	X				X		X	X	X
Liss Gover, Tribel Administratoriti PA Director	X				X			X	
Cocopah Indian Tribe		-							
Sherry Cordona, Chargerson	X				×			×	
All McCorreck, Caltural Resources Manager	×			×	X	x	×	×	×
Ewinepasyp Band of Kurseyan	y legitaria								
Robert Pinto, Sr., Christoppon I	X				×			×	
Will Mickie, Executive Devictor	×				X		×	- î	×
Michiel Gerdis, Vice- Chairman, 8PA Director	×				×			×	-
Jire Robertson, Cultural					×	_			
Resources Coordinator					^				
Fort Yuma Quechan Tribe									
Michael Jackson, Sr., President	х	х			х			X	
Bridgel Nich-Christiescz, Historic Preservation Officer/Cultural Committee Coordinator	×			х	×	×	×	х	x
Lorey Cachora									
Fort Yuma Quechan Tribe-Ah-W	lut Pipa Foundation								
Preston Arraweed	X			X	X	X	X	X	1
Jernul Indian Villege									
Kerneth Hook, Sr.,	v				¥				
Chairperson	,							4	
Jesso Pirto	K .				X			X	
Kwazymii Laguna Band of Miss	ion Indians								
Correct Leave	X				×			X	
La Peeta Band of Kumayaay inc	113015								
Gwinderjn Parade, Charperson	×				х		X	X	х
James Hill Effe Director									

Contact & Tribe	BLM Letter 1/15/10	Tribe Lettor Response 2/4/10	Tribe Letter Response 2/24/10	Follow-up Email 3/1/10	3/11/10	Follow-up Email 3/12/10	Follow-up Emili 3/26/10	BLM Letter 3/29/10	Follow-up Email 4/15/10
Revice Papa, Environmental Coestinator/Kurreysay Cultural Replatitation Committee	×				×		×	×	×
Manageness Bend of Kumeyony I	16205								
Lerry Ellot, Chergorson	X				X				
Keith Adkins, Environmental Coentinator	x				×		×	х	×
Nick Elliot, Emeronmental Coordinator	х				х			×	
San Pasquel Bond of Diesseno	Indiana								
Allon Linyson, Jr., Chiesporson	X				X		X .		-
Dave Foler, Coungimen	X		×		X		X		
Kristo Orosco, Enwronmestel Coordinator									
Sonta Yaabal Band of Diegueno	Indians								
Johany Hernandez, Czairserson	X				х		×	×	X
Clini Linton, Red Tell Manipring and Resourch, Inc.	x				×		×	×	X
Rice Chrystman	X				×			_ ^	
Rodney Kephort									
Corns-Martinez Desert Colymbia	indians								
Roymond Torres Dhistorison									
Oters Chihashio, Cubural Resources Coordinator									
Alberto Harmina, Environmental Coordinator stale General Note: All Tribes and per									

Contact & Tribe	Follow-up Email 5/3/10	Face- to-Face Meeting 5/4/10	Tribe Letter Response 5/4/10	Follow-up Emails 5/13/10 & 5/17/10	Tribe Letter Response 5/16/10	Face-to- Face Meeting 5/18/10	Follow-up Email 5/28/19	Tribe Letter Response 5/31/10	BLM Letter 6/2/10	Tribe Letter Response 6/4/10	Tribe Letter Response 6/14/10	Follow-up Email 6/15/10	Face-to- Face Meeting 6/16/10	BLM Letter 6/24/10	Follow-up Email 6/25/10
Campo Bared of Kurreyary In	diens														
H. Paul Cuero, Jr.,															
Cheirsenon															
Figuri Hyde, EPA Director															
Manique LeCheppe, Chairperson	×			x			ж		×			×		ж	×
List Gover, Tirbal Administrative FPA Director									ж					х	
Coceanh Indian Tribe															
Shirm Contexts Chairpenen									X					X	
Jil McCornick, Cultural	*	×		×		×	×		Y			×	×	×	×
Resources Manager	×	×				^	^								
Ewizzpazyp Bend of Kursey	ancibra yea														
Robert Pleto, Sr., Chiesperson									X					×	
Wit Mckie, Faccative Director	×			X			X		X			X		×	X
Wichoul Gards, Vice- Owinger, SPA Director									х					х	
Jim Robertson, Cultural Resources Coordinator									х					х	
Fort Yums Quechan Tribe															
Michael Jackson, Sr., President									×					x	
Bridget Nash Christeskiz, Hatoric Phraenvation Officer/Cultural Committee Gendinator	×	х	×	×		X (called in)	x		×	x	×	×	X (culled H)	x	×
Lorsy Cachora													, x		
Fort Yuma Question Tribe-All												×		- ×	X
	X	X		X			X		X			X			
Jerrul Indian Village															
Konneth Meca, Sr., Churtoerson									x					×	
Javan Pitto									X					×	
Kwaoymii Lagura Band of M	teston Indians														
Carrier Lucas	1				×			X	X				X	X	
La Pesta Band of Kumeyezy	Portions.														
Daymooka Pasada.							×		×			1		×	X
Charperson	×			х			A		×						
James Hill, DPA Director															

Contact & Tribe	Follow-up Email 5/3/10	Face- to-Face Neeting 5/4/10	Tribe Letter Response 5/4/10	Follow-up Emails 5/13/10 & 5/17/10	Tribe Letter Response 5/16/10	Face-to- Face Meeting 5/18/10	Follow-up Email 5/28/10	Tribe Letter Response 5/31/10	BLM Letter 6/2/10	Tribe Letter Response 6/4/10	Tribe Letter Response 6/14/10	Follow-up Email 6/15/10	Face-to- Face Meeting 6/16/10	BLM Letter 6/24/10	Follow-up Email 6/25/10
Service Palpa, Environmental Coordinate/Hameyeay Cultural Populations Committee	×			к			x		×			х	K (satted in)	х	×
Mangareta Band of Kurneyon	y Indiana														
									×						
KARN ASKING, Environmental Coordinator	×			×			×		×			х		×	х
Nick Ellott, Invironmental Coordinator									×					×	
San Peagual Band of Disgues	no lociera													-	
Afon London, Jr., Oharperson														- A	
Dave Trice, Councilram	×			X			×		A						
Krado Orosco, Environmental Coordinator													X.		_ ^_
Sarks Yashel Band of Diegue	nesibri oru														1 ×
Jahrny Harnandez. Charpensen	×			ж			X		×			X		×	×
Cird Litton, Red Tall Mondaring and Research, Inc.	X			х			Х		×			X		, X	^
Plan Christman												×		X	A
Rodery Krighten							X		^						
Torres-Martinez Desert Calus	Ha Indiana														
Represent Torres, Cheeperson												+			
Resources Coordinator									-						
Alberto Harmenz.															
Environmental Coordinator Cubic General Motor Ad Frities and										COLUMN CONTRACT	cess distance occur.			or, there is no	

# Appendix G Draft Programmatic Agreement

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### DRAFT

PROGRAMMATIC AGREEMENT
AMONG THE
BUREAU OF LAND MANAGEMENT-CALIFORNIA,
THE UNITED STATES ARMY CORPS OF ENGINEERS,
THE CALIFORNIA ENERGY COMMISSION,
THE TESSERA SOLAR COMPANY,
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER,
AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE TESSERA SOLAR - IMPERIAL VALLEY SOLAR
PROJECT, IMPERIAL COUNTY, CALIFORNIA

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31	XIV. DURATION OF THIS AGREEMENT2
32	XV. EFFECTIVE DATE
33	SIGNATORY PARTIES

#### INTRODUCTION

- The purpose of this Programmatic Agreement (Agreement) is to provide processes whereby the
   Bureau of Land Management (BLM), U.S. Army Corps of Engineers (COE), and the California
- 42 Energy Commission (Energy Commission), in consultation with the California State Historic
- 43 Preservation Officer (SHPO), Advisory Council on Historic Preservation (ACHP), Indian Tribes
- 44 and other consulting parties, shall determine the steps the agencies shall follow to take into
- 45 account effects on historic properties as required by Section 106 of the National Historic
- 46 Preservation Act and satisfy the requirements of the California Environmental Quality Act.
- 47 The BLMin consultation with the consulting parties to this Agreement, will consider and
- 48 incorporate within the Section 106 consultation process the performance standards (desired
- 49 future condition), the range of mitigation measures and commitment to mitigate, and monitoring
- 50 requirements of the Energy Commission's Staff Assessment for the Tessera Solar Imperial
- 51 Valley Solar Project (Application for Certification 08-AFC-5). The BLM and the Energy
- valley Solar Project (Application for Certification 08-APC-3). The BLM and the Energy
- 52 Commission will endeavor to make the historic properties treatment and management provisions
- 53 of this Agreement as consistent as possible with the objectives and terms of the Staff Assessment
- 54 within the context of the consultation process required by Section 106 of the NHPA.
- 55 Government agencies, consulting parties, and the public identified in the scoping and public
- 56 notification process for the Staff Assessment and Environmental Impact Statement will be
- 57 advised in the Supplemental Staff Assessment and Final Environmental Impact Statement (FEIS)
- 58 that historic properties associated with the undertaking would be treated consistent with the
- 59 mitigation measures or performance standards identified in the Staff Assessment and adopted by
- 60 the Energy Commission, and consistent with the stipulations of this Agreement. A proposed final
- draft of this Agreement will be circulated for public comment as an attachment to the FEIS. The
- 62 Signatories have consulted with the Invited Signatories, Concurring Parties and Tribes on this
- 63 Agreement, and have taken into consideration the views and comments received regarding the
- 64 draft Agreement in preparing this final Agreement.

#### PROGRAMMATIC AGREEMENT AMONG THE

BUREAU OF LAND MANAGEMENT-CALIFORNIA, THE UNITED STATES ARMY CORPS OF ENGINEERS, THE CALIFORNIA ENERGY COMMISSION, THE TESSERA SOLAR COMPANY,

THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION REGARDING THE TESSERA SOLAR - IMPERIAL VALLEY SOLAR PROJECT, IMPERIAL COUNTY, CALIFORNIA

WHEREAS, the Tessera Solar Company (Applicant) has applied for a right of way (ROW) grant on approximately 6,144 acres of public lands managed by the Bureau of Land Management (BLM) and has submitted a Plan of Development (POD) to construct, operate and maintain a solar energy electrical generating plant (hereinafter referred to as the Imperial Valley Solar Project or Project), including construction of approximately 30,000 solar dish power control units (SunCatchers), a 230 kilovolt (kV) transmission lines, a water pipeline, paved arterial roads, unpaved perimeter access and maintenance roads, laydown and staging areas, and support facilities and infrastructure which are more fully described in Appendix D: Project Description and illustrated in Appendix E: Project Maps and Illustrations attached hereto and incorporated by this reference; and

WHEREAS, the BLM has determined that issuing a right-of-way grant (ROW) to the Tessera Solar Company in accordance with the Federal Land Policy and Management Act (FLPMA) (Public Law 940-579; 43 USC 1701) is an undertaking as defined at 36 CFR 800.16(y)(Protection of Historic Properties, August 5, 2004) of the regulations implementing Section 106 of the National Historic Preservation Act (16 USC 470(f))(NHPA); and

WHEREAS, the United States Army Corps of Engineers (COE) may issue a Department of the Army permit pursuant to section 404 of the Clean Water Act for discharges of dredged or fill material into jurisdictional waters of the United States associated with the Imperial Valley Solar Project, which constitutes an undertaking as defined at 36 CFR 800.16(y), and has participated in this consultation and is a Signatory to this Programmatic Agreement (Agreement); and

WHEREAS, the BLM is the lead federal agency for these undertakings for the purpose of complying with Section 106 of the NHPA and its implementing regulations found at 36 CFR Part 800, and the BLM shall be responsible for managing historic properties within the Area of Potential Effects (APE) for the undertaking pursuant to the NHPA; and

WHEREAS, in August 2005, the United States Congress enacted the Energy Policy Act of 2005 (Public Law 109-58). In section 211 of this Act, Congress directed that the Secretary of the Interior (the "Secretary") should, before the end of the 10-year period beginning on the date of

enactment of the Act, seek to have approved non-hydropower renewable energy projects located on the public lands with a generation capacity of at least 10,000 megawatts of electricity; and

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111 WHEREAS, by Secretarial Order No. 3285 issued March 11, 2009, the Secretary stated as policy that encouraging the production, development, and delivery of renewable energy is one of 112 113 the Department of Interior's (DOI) highest priorities and that agencies and bureaus within the DOI will work collaboratively with each other, and with other federal agencies, departments, 114

states, local communities, and private landowners to encourage the timely and responsible 115 development of renewable energy and associated transmission while protecting and enhancing 116

117 the Nation's water, wildlife, and other natural resources; and

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WHEREAS, BLM and the COE have consulted with the California State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP), pursuant to 36 CFR 120 800.14(b)(3) and following the procedures outlined at 36 CFR 800.6, and is in the process of 121 considering alternatives for the Project that have the potential to adversely affect historic 123 properties and may reach a decision regarding approval of the undertakings before the effects of the undertaking's implementation on historic properties have been fully determined, the BLM chooses to continue its assessment of the undertaking's potential adverse effect and resolve any such effect through the implementation of this Agreement; and

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WHEREAS, the BLM and COE, in consultation with the SHPO and the ACHP and pursuant to 36 CFR 800.4(b)(2) where alternatives under consideration consist of large land areas, has determined that a phased (tiered) process for compliance with Section 106 of the NHPAmay be appropriate for the undertakings; and

WHEREAS, the Juan Bautista de Anza National Historic Trail corridor is located within the APE for the undertakings and the National Park Service (NPS) has agreed to participate in the Section 106 consultation regarding the undertakings under the terms of this Agreement and is a Concurring Party to this Agreement; and

WHEREAS, the California Energy Commission (Energy Commission) may certify the Imperial Valley Solar Project located on both public and private lands pursuant to Section 25519. subsection (c) of the Warren-Alquist Act of 1974 and for the purposes of consistency proposes to manage all historical resources in accordance with the stipulations of this Agreement, and has participated in this consultation and is an Invited Signatory to this Agreement; and

WHEREAS, the BLM, in coordination with the Energy Commission, has authorized the Applicant to conduct specific identification efforts for this undertaking including a review of the existing literature and records, cultural resources surveys, ethnographic studies, and geomorphological studies to identify historic properties that might be located within the Area of Potential Effect (APE); and

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WHEREAS, the Applicant has retained an archaeological consultant to complete all of the investigations necessary to identify and evaluate cultural resources located within the Area of Potential Effect (APE) for both direct and indirect effects. A review of the existing historic, archaeological and ethnographic literature and records has been completed to ascertain the presence of known and recorded cultural resources in the APE and buffered study area, has conducted an intensive field survey for 7,700 acres of land, including all of the lands identified in APE for direct effects for all project alternatives, and has completed intensive field surveys for alternatives on lands that are no longer part of the project. A cultural resources inventory report (Draft Final Class III Cultural Resources Technical Report for the Imperial Valley Solar Project, Application for Certification (08-AFC-5), Imperial Valley Solar, LLC, prepared by URS Corporation, June 2010) has been submitted that presents the results of identification efforts to the BLM, the COE, and the Energy Commission. The BLM has provided the report to the consulting parties and Indian Tribes for review and comment; and

WHEREAS, the BLM and the Energy Commission have prepared the Staff Assessment and Draft Environmental Impact Statement and Draft California Desert Conservation Area Plan Amendment, SES Solar Two Project, Application for Certification (08-AFC-5) Imperial County (2010) to identify the project alternatives for purposes of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), and have comparatively examined the relative effects of the alternatives on known historic properties; and

WHEREAS, the Applicant has participated in this consultation per 36 CFR 800.2(c)(4), will be the entity to whom the BLM grants a ROW and the COE issues a permit related to Project activities, with the responsibility for carrying out the specific terms of this Agreement under the oversight of the BLM, and therefore is an Invited Signatory to this Agreement; and

WHEREAS, pursuant to section 101(d)(6)(B) of the NHPA, 36 CFR 800.2(c)(2)(ii), the American Indian Religious Freedom Act (AIRFA), Executive Order 13175, and section 3(c) of the Native American Graves Protection and Repatriation Act (NAGPRA), the BLM is responsible for government-to-government consultation with federally recognized Indian Tribes and is the lead federal agency for all Native American consultation and coordination; and

WHEREAS, the BLM has formally notified and invited the Campo Kumeyaay Nation, the

Cocopah Indian Tribe, the Quechan Indian Tribe, the Ewiiaapaayp Band of Kumeyaay Indians, the Jamul Indian Village, the Kwaaymii Laguna Band of Indians, the La Posta Band of Kumeyaay Indians, the Manzanita Band of Kumeyaay Indians, the San Pasqual Band of Diegueno Indians, and the Santa Ysabel Band of Diegueno Indians (Tribes), and the Ah-Mut Pipa Foundation to consult on this undertaking and participate in this Agreement as a Concurring Party. BLM has documented its efforts to consult with the Tribes and Tribal Organizations and a summary is provided in Appendix I to this Agreement; and

WHEREAS, the BLM shall continue to consult with the Tribes and Tribal Organizations throughout the implementation of this Agreement regarding the adverse effects to historic properties to which they attach religious and cultural significance. BLM will carry out its responsibilities to consult with Tribes that request such consultation with the further

understanding that, notwithstanding any decision by these Tribes to decline concurrence, BLM shall continue to consult with these Tribes throughout the implementation of this Agreement; and .

WHEREAS, through consultation, Tribes and Tribal Organizations have expressed their views and concerns about the importance and sensitivity of specific cultural resources that hold religious and cultural significance. Tribes have expressed theconnection of these resources to the broader cultural landscape within and near the project area; and

WHEREAS, the National Trust for Historic Preservation, the Anza Society, the California Unions for Reliable Energy, and the Sacred Sites International Foundation, as organizations, and Edie Harmon and Greg P. Smestad, Ph.D., as individuals, have been invited to consult on this undertaking and this Agreement, have been afforded consulting party status pursuant to 36 CFR 800.4, and have been invited to be Concurring Parties to this Agreement;

NOW, THEREFORE, the BLM, the COE, the SHPO, and the ACHP (hereinafter "Signatories) and the Energy Commission and the Applicant (hereinafter "Invited Signatories"), agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

#### STIPULATIONS

The Signatories and Invited Signatories shall ensure that the following measures are implemented:

#### I. DEFINITIONS

The definitions found at 36 CFR 800.16 and in this section apply throughout this Agreement except where another definition is offered in this Agreement.

- a) Concurring Parties. Collectively refers to consulting parties with a demonstrated interest in the Undertaking, who concur, through their signature, in this Agreement. Concurring Parties may propose amendments to this Agreement. Amendments proposed by Concurring Parties may be considered at the discretion of the Signatories.
- b) Cultural Resource. A cultural resource is an object or definite location of human activity, occupation, or use identifiable through field inventory, historical documentation, or oral evidence. Cultural resources are prehistoric, historic, archaeological, or architectural sites, structures, buildings, places, or objects and definite locations of traditional cultural or religious importance to specified social and/or culture groups. Cultural resources include the entire spectrum of resources, from artifacts to cultural landscapes, without regard to eligibility for inclusion on the National Register of Historical Resources (CRHR).
- c) Consulting Parties. Collectively refers to the Signatory, Invited Signatory and Concurring Parties to this Agreement.

d) Day. Singular or plural, refers to a calendar, rather than a business, day.

- e) Historic Properties. Historic Properties are included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior and per the NRHP eligibility criteria at 36 CFR § 60.4 and my include any prehistoric or historic district, site, building, structure, traditional cultural property or objectCFR. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the NRHP criteria. The term eligible for inclusion in the NRHP includes both properties formally determined as such in accordance with regulations of the Secretary of the Interior and all other properties that meet the NRHP criteria.
- f) Historic Resources. Historic resources meet the criteria for listing on the CRHR as provided at California Code of Regulations Title 14, Chapter 11.5, Section 4850 and may include, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.
- g) Invited Signatories. Invited Signatories to this Agreement are the Energy Commission and Applicant. Invited Signatories have specific responsibilities as defined in this Agreement and have the same rights as the Signatory Parties to propose amendments and termination of this Agreement, but their signatures are not required for execution of the Agreement.
  - h) Lands Administered by the U.S. Department of Interior, Bureau of Land Management (BLM) means any federal lands under the administrative authority of the BLM.
- Lands Regulated by the U.S. Army Corps of Engineers (COE) means any lands subject to regulation by the COE pursuant to section 404 of the Clean Water Act (33 U.S.C. section 1344) or other law, and for which the COE has issued a Department of the Army permit.
- j) Literature Review. A literature review is one component of a BLM class 1 inventory, as defined in BLM Manual Guidance 8100. 21(A)(1), and is a professionally prepared study that includes a compilation and analysis of all reasonably available cultural resource data and literature, and a management-focused, interpretive, narrative overview, and synthesis of the data. The overview may also define regional research questions and treatment options.
- k) Records Search. A records search is one component of a BLM class I inventory and an important element of a literature review. A records search involves obtaining existing cultural resource data from published and unpublished documents, BLM cultural resource inventory records, institutional site files, State and national registers, interviews, and other information sources.
- Signatories. Signatories to this Agreement are the BLM, COE, SHPO, and ACHP. Signatories have the sole authority to execute, amend or terminate this Agreement.
- m) Traditional Cultural Property. A traditional cultural property is defined generally as property that is important to a living group or community because of its association with cultural practices or beliefs that (a) are rooted in that community's history, and (b) are

important in maintaining the continuing cultural identity of the community. It is a place that may figure in important community traditions or in culturally important activities, such as traditional gathering areas, prayer sites, or sacred/ceremonial locations. These sites may or may not contain features, artifacts, or physical evidence, and are usually identified through consultation. A traditional cultural property may be eligible for inclusion in the NRHP and the CRHP.

- Tribes. The federally recognized and non-federally recognized Indian Tribes that BLM is consulting with on this undertaking
- Undertaking. Issuing any ROW/permit(s) individually or collectively by the BLM or COE allowing or facilitating construction, operation or maintenance activities related to the Project on BLM administered or COE regulated lands constitutes an undertaking as defined at 36 CFR 800.16(v) and are the undertakings addressed by this Agreement.
- p) Windshield Survey. A windshield survey is a common method utilized in reconnaissance surveys to identify built-environment cultural resources, such as buildings, objects, and structures. Windshield surveys involve surveyors driving or walking streets and roads of a community and observing and recording the buildings, structures, and landscape characteristics they see.

#### II. AREA OF POTENTIAL EFFECTS

- a) The APE is defined as the total geographic area or areas within which the undertaking may directly or indirectly cause alterations in the character or use of historic properties per 36 CFR 800.16(d). The APE is influenced by the scale and nature of an undertaking and includes those areas which could be affected by a project prior to, during and after construction. For the Imperial Valley Solar Project the overall APE has been defined to include a 15 mile radius around the project location. Specific APE's for the project are discussed below and include the methodology used to identify historic properties. See Appendix E for APE map and project illustrations.
  - Where Historic Properties could sustain direct physical effects as a result of the undertaking the APE is defined to include:
    - (1) All areas subject to the BLM's ROW decision for the Phase I 300 megawatt (MW) and the Phase II 450 MW portions of the Project area, which includes approximately 6,140 acres of public lands and 360 acres of private lands. The area is generally bounded by Interstate 8 on the south, Dunaway Road to the east, and the Evan Hewes Highway to the north and west. A 200 foot buffer around the APE was included in the survey for cultural resources within the APE per Energy Commission requirements.
    - (2) The APE for linear elements of the undertaking includes:
      - (a) A ROW for an approximate 10 foot wide and 11.8 mile long water supply pipeline that would extend from the Seeley Waste Water Treatment Plant. The

- pipeline will be buried 30 inches below grade in the shoulder of the existing ROW of the Evan Hewes Highway. A survey corridor for cultural resources for this linear element was established as a 75-foot buffer on either side of the center line (150 foot corridor) to allow for changes in the ROW to avoid cultural resources.
- (b) A ROW for temporary or permanent access roads required outside the plant footprint is approximately 30 feet. A survey corridor for cultural resources for this linear element was established as a 50-foot buffer on either side of the center line (100 foot corridor) to allow for changes in the ROW to avoid cultural resources.
- (c) The ROW for the 230 kV transmission line is defined as an approximately 100 foot wide and 10.3 mile long corridor that extends to the San Diego Gas and Electric Company Imperial Valley Substation. A survey corridor for cultural resources for this linear element was established as a 150-foot buffer on either side of the center line (300 foot corridor) to allow for changes in the ROW to avoid cultural resources.
- ii) Historic properties not located within the areas described in Stipulation II(a)(i) within 15 miles of the Project that could sustain direct or indirect effects, including visual, auditory, and atmospheric, as a result of the undertaking and is defined to include:
  - (1) Cultural resources identified through a review of existing literature and records search, information or records on file with the BLM or at the SIC, interviews or discussions with local professional or historical societies and local experts in history or archaeology. Specific areas of concern or cultural resources that were identified include:
    - (a) Cultural resources in the Yuha Area of Critical Environmental Concern (ACEC).
  - (2) Any cultural resource or location which has been included in the Native American Heritage Commission Sacred Lands Files, identified through a literature review or records search, or identified by a Tribe or Tribal organization, through consultation as having religious or cultural significance. Specific areas of concern or cultural resources that have been identified through tribal consultation include:
    - (a) Certain geological features including Signal Mountain and Coyote Mountain.
    - (b) Human remains located within or in proximity to the undertaking including those in any state of decomposition or skeletal completeness.
    - (c) Geoglyphs within the 15 mile radius of the project location such as those in the Yuha ACEC.
  - (3) Any cultural resource or location which has been identified by a consulting party, organization, governmental entity, or individual through consultation or the public

commenting processes as having significance or being a resource of concern.

Areas identified through consultation to date include:

- (a) Juan Bautista de Anza National Historic Trail (Anza NHT).
  - (i) The Anza NHT corridor is designated pursuant to the National Trails Act. The corridor has historic values, as well as recreation and visitor experience values.
  - (ii) No identifiable and recognizable physical evidence or historic properties associated with the historic trail have yet been identified within the APE for direct effects. Specific areas of concern or cultural resources associated with the NHT have been identified both south and north of the Project location and include:
    - 1. Anza Camp 47 (Yuha Well)
    - 2. Anza Camp 48
    - 3. Anza Camp 49 (San Sebastian Marsh)

Sites associated with the 1781 Rivera Expedition which utilized the Anza trail corridor

- (iii)No identifiable and recognizable physical evidence or historic properties associated with the Rivera y Moncada Expedition of 1781 have yet been identified to occur within the APE for direct effects.
- (4) Built-environment resources
  - (a) The APE for the built-environment is defined to include a half-mile buffer from the project site and above-ground linear facilities to encompass historic properties whose historic setting could be adversely affected. Specific areas of concern or cultural resources have been identified both south and north of the Project location and include:
    - (i) Imperial Irrigation District hydraulic irrigation system components
    - (ii) Highway 80 (Evan Hewes Highway) and remnants
    - (iii)San Diego and Arizona Railroad
    - (iv)U.S. Gypsum Rail-Line
    - (v) Plaster City Gypsum Plant
- (5) Cultural resources on private property identified through surveys, where access was granted, and windshield surveys, where access was not allowed, within a half mile of the APE for direct effects.
- (6) Cultural resources identified through a literature review and records search at the BLM El Centro Field Office and at the SIC, for cultural resources that are located

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within a one mile buffer of the project area and 1/4-mile from each linearProject feature.

- (a) Historic Districts and Landscapes
  - (i) Yuha Basin Discontiguous Archaeological District
- (7) Cultural resources identified through archaeological or other field investigations for this undertaking that, as a result of project redesign to avoid direct effects to cultural resources, are no longer within the Project area but could still sustain indirect effects.
  - (a) Project redesign eliminated approximately 1200 acres of public lands on the eastern perimeter of the proposed project to avoid effects to potentially significant prehistoric archaeological sites and burial sites, reducing the generating capacity of the proposed solar project from 900 MW to 750 MW.
- b) Amending the APE: The APE encompasses an area sufficient to accommodate all of the proposed and alternative project components under consideration as of the date of the execution of this Agreement. If BLM determines in the future that unforeseen changes to the undertaking may cause alterations in the character or use of historic properties, if any such properties exist, in a geographic area or areas beyond the extent of the APE above. then the BLM, in consultation with the Signatories and Invited Signatories shall modify the APE using the following process:
  - i) Any consulting party to this Agreement may propose that the APE established herein be modified. The BLM shall notify the other Signatories and Invited Signatories of the proposal and consult for no more than 15 days to reach agreement on the proposal.
  - ii) If the Signatories agree to the proposal, then the BLM will prepare a description and a map of the modification to which the Signatories agree. The BLM will keep copies of the description and the map on file for its administrative record and distribute copies of each to the other Signatories Invited Signatories and Concurring Parties within 30 days of the day upon which agreement was reached.
  - iii) Upon agreement to a modification to the APE that adds a new geographic area, the BLM shall follow the processes set forth in Stipulation III to identify and evaluate historic properties in the new APE, assess the effects of the undertaking on any historic properties in the APE, and provide for the resolution of any adverse effects to such properties, known or subsequently discovered.

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- III. IDENTIFICATION AND EVALUATION
  - a) The BLM, in coordination with the Energy Commission, has authorized the Applicant to conduct specific identification efforts for this undertaking including, but not limited to, a literature review, records search, cultural resources surveys, ethnographic studies, and geo-morphological studies to identify historic properties that might be located within the APE.

iv) If the Signatories cannot agree to a proposal for the modification of the APE, then

they will resolve the dispute in accordance with Stipulation XI.

- i) A cultural resources report (URS June 2010) has been submitted by the Applicant that presents the results of identification efforts to the BLM, the COE, and the Energy Commission and is currently under review. The BLM, the COE, and the Energy Commission will assess whether the report conforms with the field methodology and site description template required under BLM Fieldwork Authorization CA-670-06-07FA09 and Fieldwork Authorization CA-670-06-07FA10 and Energy Commission transaction number Data Requests Set 2, Part 2 #142, Docket number 08-AFC-5.
- i) The BLM, in consultation with the Energy Commission and COE, may require additional field investigations to be conducted by the Applicant to ensure the accuracy of site recordation and to provide additional information to support site evaluations and the assessment of effects. The BLM, the COE, and the Energy Commission, separately or together, have the right and the discretion, under this Agreement, to request additional field studies.
- ii) The BLM has consulted and shall respond to any request to consult with Tribes. Tribal organizations or tribal individuals regarding the identification of historic properties within the APE to which they attach religious or cultural significance.
- b) The BLM shall make determinations of eligibility consistent with 800.4(b)(2) and findings of effect consistent with 800.5(a)(1) prior to the Record of Decision to the extent practicable on those cultural resources within the APE, and make the agency's determinations and findings available to the consulting parties, Tribes and the public for a 45 day review and comment period.
  - i) The BLM will respond to any request for consultation on its determinations from a consulting party to this Agreement or a Tribe.
  - ii) A consulting party may provide its comments directly to the SHPO with a copy to the BLM within the 45 day comment period.

- iii) Absent comment within 45 days, the BLM may submit its determinations to SHPO for final review and comment.
- iv) Where a consulting party or Tribe objects to the BLM's determination for a specific cultural resource within the 45 day review period, the BLM shall consult with the objecting party and the SHPO regarding the nature of the objection and reconsider its determinations.
  - If the objection is not resolved, the BLM shall further consult with the SHPO and follow the processes provided at 36 CFR 800.4(c)(2) for involvement of the ACHP.
  - (2) The BLM may proceed with determinations for all cultural resources not subject to objection.
- The BLM and the Energy Commission shall coordinate to the extent feasible and practicable on determinations of eligibility for the NRHP and the CRHR.
  - (1) Historic properties formally determined eligible for inclusion in the NRHP are listed on the CRHR per California Code of Regulations 4851(a)(1).
  - (2) If BLM and the Energy Commission do not agree on the eligibility of historic properties for the NRHP and CRHR respectively, the BLM and the Energy Commission shall consult with the SHPO for 15 days to resolve disagreements with regard to eligibility.
    - (a) The SHPO shall have the final authority to resolve disagreements regarding eligibility for the CRHR.
      - (i) If the SHPO determines that the cultural resource is eligible for the CRHR, the SHPO shall notify the Energy Commission and BLM and may request that BLM reconsider its determination.
- BLM will submit its determinations of eligibility to the SHPO for final review and comment.
  - (1) SHPO will have 30 days in which to review and comment.
  - (2) Absent comments within this time frame, BLM may assume, and formally document for the record, that the SHPO has elected not to comment and concurs with BLM's determinations.
  - (3) If the BLM and SHPO disagree on the determination, BLM shall follow the processes provided at 36 CFR 800.4(c)(2) and seek a determination from the Keeper of the National Register.
- c) The BLM may defer the formal and final evaluation of cultural resources whose values are limited to the potential to yield information about history or prehistory and where testing or limited excavation is recommended to determine whether the site would be

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eligible under Criterion D for inclusion on the NRHP. The BLM may also treat cultural resources as historic properties for the purpose of project management if adverse effects to those specific resources can be avoided.

- If adverse effects to a cultural resource which is being treated as a historic property cannot be avoided, the BLM must either evaluate the resource and make a determination of eligibility or resolve the adverse effect by implementing the prescriptions of the Historic Properties Treatment Plan (HPTP).
- ii) The Applicant shall submit to the BLM an analysis of the cultural resources that the Undertaking appears likely to affect. The analysis shall also detail which cultural resources that the undertaking appears to have no potential to affect, which cultural resources the Applicant commits to avoiding through the implementation of formal avoidance measures, and which cultural resources cannot be avoided and will need to be evaluated and/or be treated by implementing the prescriptions of the HPTP required in Section IV of the Agreement. This analysis will be included in table format in Appendix H.
- iii) The Applicant, at the direction of the BLM, the COE, and the Energy Commission, may prepare the analysis required above in phases that correspond to the proposed sequence of development for the Phase 1 330 MW and Phase 2 450 MW energy plant, or in phases for each block of 60 SunCatchers, provided that analyses are ultimately prepared for the entirety of the APE.
- iv) Where additional evaluation efforts are required to assess the informational values of cultural resources, the BLM and the Energy Commission shall ensure that cultural resources located within the APE are evaluated for the NRHP and the CRHR pursuant to the guidelines provided in Appendix A of this Agreement.
- d) Where additional identification and evaluation efforts are required due to changes in the project and the APE, the BLM and the Energy Commission shall ensure that cultural resources located within the APE are identified and evaluated for the NRHP and the CRHR pursuant to Appendix A of this Agreement.
- e) Amendment of the identification and evaluation process as set forth herein will not require amendment of this Agreement if all Signatories do so agree.

#### IV. TREATMENT AND MANAGEMENT OF HISTORIC PROPERTIES

- a) The resolution or mitigation of effects to historic properties shall be described in one or more HPTP(s) that shall be an attachment to Appendix B of this Agreement.
  - The BLM and the Applicant, in consultation with the consulting parties and Tribes, shall seek to develop a draft HPTP prior to the ROD if feasible, or to otherwise

develop a framework and consensus on the general treatment measures for affected historic properties that would be finalized in the HPTP.

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- Prior to the issuance of any Notice to Proceed by BLM to initiate the undertaking or any component of the undertaking, which may affect historic properties the Applicant shall develop and submit to BLM one or more HPTPs.
- (2) The HPTP will be initiated after the ROW is granted by the BLM and issuance of any CWA section 404 permit by the COE but prior to the issuance of a Notice to Proceed for construction in those portions of the undertaking addressed by the HPTP.
- (3) The BLM may authorize the phased implementation of the HPTP (per Stipulation IX), or if appropriate, the development of HPTPs for individual cultural resources, or HPTPs that are issue oriented or geographically.
- ii) The BLM and the Energy Commission, to extent possible and consistent with the guidelines provided in Appendix B(2), shall coordinate on the development of the treatment or mitigation measures proposed in the Energy Commission's Conditions of Certifications and the treatment measures developed through the Section 106 consultation process.
- b) The BLM shall submit the HPTP to the consulting parties and Tribes for a 30 day review period. Absent comments within this time frame, BLM may finalize the HPTP. BLM will provide the parties with written documentation indicating whether and how the draft HPTP will be modified in response to any timely comments received. If the HPTP is revised in response to comments, BLM shall submit the revised HPTP to all parties for a 15 day review period. Absent comments within this time frame, BLM will finalize the HPTP. BLM will provide the consulting parties and Tribes with a copy of the final HPTP.
- c) Where an HPTP specifically addresses treatment for adverse effects to historic properties to which Tribes attach religious or cultural significance, the BLM shall submit the HPTP to the Tribes and seek their views and comments through consultation, regardless of the status of a Tribe as a consulting party to this Agreement.
  - BLM shall submit an HPTP which addresses treatment for adverse effects to historic properties to which a Tribe(s) attaches religious and cultural significance to the SHPO. BLM shall consult with involved Tribe(s) on distribution of the HPTP to other consulting parties.
- BLM shall ensure that any HPTP, developed in accordance with Appendix B of this Agreement, is completed and implemented.
- e) BLM shall ensure that a Historic Property Management Plan (HPMP), which provides for the protection and management of historic properties during the operational life and

decommissioning of the solar energy power plant, is developed and implemented in accordance with Appendix C of this Agreement.

f) Amendment of an HPTP or HPMP as set forth herein will not require amendment of this Agreement if all Signatories do so agree. If the Signatories do not agree to the amendment of the HPTP or HPMP, the disagreement will be resolved pursuant to the procedures in Section XI of this Agreement.

## V. DISCOVERIES AND UNANTICIPATED EFFECTS

 a) If the BLM determines during implementation of the HPTP that either the HPTP or the undertaking will affect a previously unidentified property that may be eligible for the NRHP, or affect a known historic property in an unanticipated manner, the BLM will address the discovery or unanticipated effect in accordance with those provisions of the HPTP that relate to the treatment of discoveries and unanticipated effects. BLM at its discretion may herein assume any discovered property to be eligible for inclusion in the NRHP, BLM compliance with this stipulation shall satisfy the requirements of 36 CFR 800.13(a)(1).

#### VI. TREATMENT OF HUMAN REMAINS OF NATIVE AMERICAN ORIGIN

- a) The Signatories and Invited Signatories to this Agreement agree that Native American burials and related items discovered on BLM administered lands during implementation of the terms of the Agreement will be treated in accordance with the requirements of the NAGPRA. The BLM will consult with concerned Indian Tribes, Tribal Organizations, or individuals in accordance with the requirements of §§ 3(c) and 3(d) of the NAGPRA and implementing regulations found at 43 CFR Part 10 to address the treatment of Native American burials and related cultural items that may be discovered during implementation of this Agreement.
- b) In consultation with the Tribes, the BLM shall seek to develop a written plan of action pursuant to 43 CFR 10.5(e) to manage the inadvertent discovery or intentional excavation of human remains, funerary objects, sacred objects, or objects of cultural patrimony. The plan of action shall be included in Appendix L of this Agreement.
- c) The BLM shall ensure that Native American burials and related cultural items on private lands are treated in accordance with the requirements of §§ 5097.98 and 5097.991 of the California Public Resources Code, and § 7050.5(c) of the California Health and Human Safety Code.

## VII. STANDARDS AND QUALIFICATIONS

 a) PROFESSIONAL QUALIFICATIONS. All actions prescribed by this Agreement that involve the identification, evaluation, analysis, recordation, treatment, monitoring, and disposition of historic properties and that involve the reporting and documentation of

- b) DOCUMENTATION STANDARDS. Reporting on and documenting the actions cited in this Agreement shall conform to every reasonable extent with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR. 44716-44740 dated September 29, 1983), as well as, the BLM 8100 Manual, the California Office of Historic Preservation's Preservation Planning Bulletin Number 4(a) December 1989, Archaeological Resource Management Reports (ARMR): Recommended Contents and Format (ARMR Guidelines) for the Preparation and Review of Archaeological Reports, and any specific county or local requirements or report formats as necessary.
- c) CURATION STANDARDS. On BLM-administered land, all records and materials resulting from the actions cited in Stipulation III, IV, V and VI of this Agreement shall be curated in accordance with 36 CFR Part 79, and the provisions of the NAGPRA, 43 CFR Part 10, as applicable. To the extent permitted under §§ 5097.98 and 5097.991 of the California Public Resources Code, the materials and records resulting from the actions cited in Stipulation III and IV of this Agreement for private lands shall be curated in accordance with 36 CFR Part 79. The BLM will seek to have the materials donated through a written donation agreement to be curated with other cultural materials. The BLM will attempt to have all collections curated at one local facility where possible unless otherwise agreed to by the consulting parties.

## VIII. REPORTING REQUIREMENTS

a) Within twelve (12) months after the BLM, in consultation with the Energy Commission, has determined that all fieldwork required by Stipulations III and IV have been completed, the BLM will ensure preparation and concurrent distribution to the consulting parties and Tribes a written draft report that documents the results of implementing the requirements of each Stipulation. The consulting parties and Tribes will be afforded 45 days following receipt of each draft report to submit any written comments to the BLM. Failure of these parties to respond within this time frame shall not preclude the BLM from authorizing revisions to the draft report as the BLM may deem appropriate. The BLM will provide the consulting parties with written documentation indicating whether and how each draft report will be modified in accordance with any reviewing party comments. Unless the reviewing parties object to this documentation in

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- writing to the BLM within 14 days following receipt, the BLM may modify each draft report as the BLM may deem appropriate. All objections shall be resolved pursuant to Stipulation XI. Thereafter, the BLM may issue the reports in final form and distribute these documents in accordance with Stipulation VIII(b).
- b) Unless otherwise requested, one paper copy of final reports documenting the results of implementing the requirements of Stipulation III or IV, will be distributed by the BLM to each consulting party, Tribes and to the California Historical Resources Information Survey (CHRIS) Regional Information Center.
- c) The BLM shall ensure that any draft document that communicates, in lay terms, the results of implementing the requirements of Stipulation III or IV, to members of the interested public, is distributed for review and comment concurrently with and in the same manner as that prescribed for the draft technical report prescribed by Stipulation VIII(a). If the draft document prescribed herein is a publication such as a report or brochure, publication shall upon completion be distributed by the BLM to the consulting parties, and to any other entity that the consulting parties may deem appropriate.

# IX. IMPLEMENTATION OF THE UNDERTAKING

- a) The BLM may authorize construction activities and manage the implementation of HPTP(s) in phases corresponding to the construction phases of the undertaking.
  - Upon approval of the HPTP and implementation of the components of the HPTP subject to determinations of compliance by the BLM for the Phase I 300 MW component, BLM may authorize a Notice to Proceed for construction activities.
    - An HPTP(s) for the Phase II 450 MW component may be developed and implemented after approval of the HPTP and issuance of the Notice to Proceed above for the Phase 1 component.
- b) The BLM may authorize construction activities, including but not limited to those listed below, to proceed in specific geographic areas of the undertaking's APE where there are no historic properties, where there will be no effect to historic properties, where a monitoring and discovery plan has been approved, an HPTP has been approved and initiated, and the activity would not preclude preservation or protection of historic properties in an area for which an HPTP has not been approved. Such construction activities may include:
  - (1) demarcation, set up, and use of staging areas for the project's construction,
  - conduct of geotechnical boring investigations or other geophysical and engineering activities, and
  - (3) construction activities such as grading, constructing buildings, and installating SunCatchers

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c) Initiation of any construction activities on federal lands shall not occur until after the ROD and Notices to Proceed have been issued by the BLM Construction shall not occur in waters of the US without the issuance of a COE 404 permit.

## X. AMENDMENTS TO THE AGREEMENT

- a) This Agreement may be amended only upon written agreement of the Signatories.
- b) Any consulting party to this Agreement may at any time propose amendments.
  - i) Upon receipt of a request to amend this Agreement, the BLM will immediately notify the other consulting parties and initiate a 30 day period to consult on the proposed amendment, whereupon all parties shall consult to consider such amendments.
  - If agreement to the amendment cannot be reached within the 30 day period, resolution
    of the issue may proceed by following the dispute resolution process in Stipulation
    XI.
  - iii) This Agreement may be amended when such an amendment is agreed to in writing by all Signatories.
- Any consulting party to this Agreement may at any time propose modifications to the Appendices.
  - Each Appendix to the Agreement may be individually modified without requiring amendment of the Agreement, unless the Signatories through such consultation decide otherwise.
  - ii) Upon receipt of a request to modify an Appendix, BLM will immediately notify the Signatories, Invited Signatories and Concurring Parties to consult on the proposed modifications and initiate a 30 day consultation period, whereupon all parties shall consult to consider such modification.
  - iii) If agreement on the modification cannot be reached within the 30 day period, resolution of the issue may proceed by following the dispute resolution process in Stipulation XI(c).
  - iv) Modifications to an Appendix shall take effect on the date that they are agreed to by the Signatories.
- d) Amendments to this Agreement shall take effect on the dates that they are fully executed by the Signatories.

 If the Agreement is not amended through the above process, any consulting party to this Agreement may terminate its participation in the Agreement in accordance with Stipulation XII.

## XI. DISPUTE RESOLUTION

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- a) Should the Signatories or Invited Signatories object at any time to the manner in which the terms of this Agreement are implemented, the BLM will immediately notify the other Signatories and Invited Signatories and initiate a 30 day period in which to resolve the objection.
- b) If the objection can be resolved within the consultation period, the BLM may authorize the disputed action to proceed in accordance with the terms of such resolution.
- c) If at the end of the 30 day consultation period, the objection cannot be resolved through such consultation, the BLM will forward all documentation relevant to the objection to the ACHP per 36 CFR 800.2(b)(2). Any comments provided by the ACHP within 30 days after its receipt of all relevant documentation will be taken into account by the BLM in reaching a final decision regarding the objection. The BLM will notify the other Signatories, Invited Signatories, and Concurring Parties in writing of its final decision within 14 days after it is rendered.
- d) The BLM's responsibility to carry out all other actions under this Agreement that are not the subject of the objection will remain unchanged.
- e) At any time during implementation of the terms of this Agreement, should an objection pertaining to the Agreement be raised by a Concurring party or a member of the interested public, the BLM shall immediately notify the Signatories, Invited Signatories, and other Concurring Parties, consult with SHPO about the objection, and take the objection into account. The other consulting parties may comment on the objection to the BLM. The BLM shall consult with the objecting party(ies) for no more than 30 days. Within 14 days following closure of consultation, the BLM will render a decision regarding the objection and notify all parties of its decision in writing. In reaching its final decision, the BLM will take into account all comments from the parties regarding the objection. The BLM shall have the authority to make the final decision resolving the objection. Any dispute pertaining to the NRHP eligibility of historic properties or cultural resources covered by this Agreement will be addressed by the BLM per 36 CFR 800.4(c)(2).

#### XII. TERMINATION

a) The Signatories and Invited Signatory have the authority to terminate this Agreement. If this Agreement is not amended as provided for in Stipulation X, or if a Signatory or Invited Signatory proposes termination of this Agreement for other reasons, the party

- proposing termination shall notify the other Signatories and Invited Signatories in writing, explain the reasons for proposing termination, and consult for no more than 60 days to resolve the objection.
- b) If a Concurring Party seeks termination of this Agreement, they may terminate their participation and shall notify the Signatories and Invited Signatories in writing, explain the reasons for proposing termination or terminating their participation, and consult for no more than 60 days to resolve the objection.
- Should consultation result in an agreement to resolve the objection, the Signatories shall proceed in accordance with that agreement.
- d) Should such consultations fail, the Signatory or Invited Signatory proposing termination may terminate this Agreement by notifying the other parties in writing.
- e) Should the entire Agreement be terminated, then the BLM and the COE, separately if necessary, shall either consult in accordance with 36 CFR 800.14(b) to develop a new agreement or request the comments of the ACHP pursuant to 36 CFR 800.7(a).

# XIII. WITHDRAWAL OR ADDITION OF PARTIES FROM/TO THE AGREEMENT

- The BLM will respond to any written request for consulting party status pursuant to 36 CFR 800.2 and 800.3(f).
  - i) Should a Concurring Party determine that its participation in the undertaking and this Agreement is no longer warranted, the party may withdraw from participation by informing the BLM of its intention to withdraw as soon as is practicable. The BLM shall inform the other consulting parties to this Agreement of the withdrawal.
  - ii) Should conditions of the undertaking change such that other state, federal, or tribal entities not already party to this Agreement request to participate, the BLM will notify the other consulting parties and invite the requesting party to participate in the Agreement. The Agreement shall be amended following the procedures in Stipulation Y

#### XIV. DURATION OF THIS AGREEMENT

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a) This Agreement will expire if the undertaking has not been initiated and the BLM right-of-way grant expires or is withdrawn, or the stipulations of this Agreement have not been initiated within five (5) years from the date of its execution. At such time, and prior to work continuing under the auspices of the undertaking, the BLM and the COE shall either (a) execute a memorandum of agreement pursuant to 36 CFR 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 C.F.R. 800.7.

- b) This Agreement expires 25 years from its effective date unless extended by written agreement of the Signatories. The Signatories and Invited Signatories shall consult at year 10 to review this Agreement. Additionally, the Signatories and Invited Signatories shall consult not less than one year prior to the expiration date to reconsider the terms of this Agreement and, if acceptable, have the Signatories extend the term of this Agreement. Reconsideration may include continuation of the Agreement as originally executed or amended, or termination. Extensions are treated as amendments to the Agreement under Stipulation X.
- c) Unless the Agreement is terminated pursuant to Stipulation XII, another agreement executed for the undertaking supersedes it, or the undertaking itself has been terminated, this Agreement will remain in full force and effect until BLM, in consultation with the other Signatories, determines that implementation of all aspects of the undertaking has been completed and that all terms of this Agreement and any subsequent tiering requirements have been fulfilled in a satisfactory manner. Upon a determination by BLM that implementation of all aspects of the undertaking have been completed and that all terms of this Agreement and any subsequent tiered agreements have been fulfilled in a satisfactory manner, BLM will notify the consulting parties of this PA in writing of the agency's determination. This Agreement will terminate and have no further force or effect on the day that BLM so notifies the Signatories to this Agreement.

#### XV. EFFECTIVE DATE

 a) This Agreement and any amendments shall take effect on the date that it has been fully executed by the Signatories. The Agreement and any amendments thereto shall be executed in the following order: (1) Applicant, (2) Energy Commission, (3) NPS, (4) COE, (5) BLM, (6) SHPO, and (7) ACHP.

Execution and implementation of this Agreement is evidence that the BLM and the COE have taken into account the effect of this undertaking on historic properties, afforded the ACHP a reasonable opportunity to comment, and that the BLM and the COE have satisfied their responsibilities under Section 106 of the NHPA. The Signatories and Invited Signatories to this PA represent that they have the authority to sign for and bind the entities on behalf of whom they sign.

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SIGN.	ATORY PARTIES	
U.S. B	UREAU OF LAND MANAGEMENT	
BY:	Sind and the same of the same	DATE:
	James Wesley Abbot State Director	
U.S. A	RMY CORPS OF ENGINEERS, LOS ANGELES DISTRIC	
BY:		DATE:
	David J. Castanon Chief, Regulatory Division	
	Chief, Regulatory 2178501	
CALI	FORNIA STATE HISTORIC PRESERVATION OFFICER	
BY:		DATE:
-	Milford Wayne Donaldson, FAIA	
	State Historic Preservation Officer	
ADVI	SORY COUNCIL ON HISTORIC PRESERVATION	
BY:		DATE:
BY:	John M. Fowler	

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941 942 943	INVITED SIGNATORY PARTIES		
343	CALIFORNIA ENERGY COMMISSION		
	BY:	DATE:	
944 945	TESSERA SOLAR L.L.C.		
	BY:	DATE:	
946 947			

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## CONCURRING PARTIES:

(This is a potential list only) 951

949 950

CAMPO KUMEYAAY NATION 952

COCOPAH INDIAN TRIBE 953

FORT YUMA QUECHAN INDIAN TRIBE 954

955 EWIIAAPAAYP BAND OF KUMEYAAY INDIANS

JAMUL INDIAN VILLAGE 956

KWAAYMII LAGUNA BAND OF INDIANS 957

LA POSTA BAND OF KUMEYAAY INDIANS 958

MANZANITA BAND OF KUMEYAAY INDIANS 959

SAN PASOUAL BAND OF DIEGUENO INDIANS 960 SANTA YSABEL BAND OF DIEGUENO INDIANS 961

AH-MUT PIPA FOUNDATION 962

KUMEYAAY CULTURAL REPATRIATION COMMITTEE 963

CALIFORNIA UNIONS FOR RELIABLE ENERGY 964

NATIONAL TRUST FOR HISTORIC PRESERVATION 965

NATIONAL PARK SERVICE 966

ANZA SOCIETY 967

EDIE HARMON 968

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SACRED SITES INTERNATIONAL FOUNDATION 969 970

GREG P. SMESTAD, PH.D.

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# Appendix H Draft Section 404B-1 Alternatives Analysis for the Imperial Valley Solar Project

This appendix contains the following:

- United States Army Corps of Engineers Draft 404(b)(1) Alternatives Analysis for the Imperial Valley Solar Project (aka Solar II) (United States Army Corps of Engineers, Los Angeles District, July 16, 2010)
- United States Army Corps of Engineers Responses to Environmental Comments on the Public Notice for the Imperial Valley Project

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United States Army Corps of Engineers

Draft 404(b)(1) Alternatives Analysis for the Imperial Valley Solar Project (aka Solar II)

(United States Army Corps of Engineers, Los Angeles District, July 16, 2010)

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# U.S. Army Corps of Engineers Draft 404(b)(1) Alternatives Analysis For the Imperial Valley Solar Project (aka Solar II)

U.S. Army Corps of Engineers, Los Angeles District Regulatory Division, South Coast Branch 6010 Hidden Valley Road, Suite 105 Carlsbad, CA 92011

Project Contact:

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(760) 602-4835

July 16, 2010

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# List of Acronyms and Abbreviations

Full Name	Acronym or Abbreviation	
Above Market Funds	AMF	
Application for Certification	AFC	
Area of Critical Environmental Concern	ACEC	
Army Corps of Engineers	ACOE	
Best management practices	BMPs	
Bureau of Land Management	BLM	
California Energy Commission	Energy Commission	
California Environmental Quality Act	CEQA	
California Independent System Operator	CAISO	
California Native Plant Society	CNPS	
California Public Utilities Commission	CPUC	
California Rapid Assessment Model	CRAM	
Colorado River Regional Water Quality Control Board	RWQCB	
Cubic feet per day	cfd	
Cubic feet per second	cfs	
Debt service coverage ratio	DSCR	
Department of Energy	DOE	
Designated Critical Habitat	DCH	
Dollar per megawatt-hour	\$/MWh	
Drainage, Erosion and Sediment Control Plan	DESCP	
Gallons Per Day	gpd	
Federal Emergency Management Agency	FEMA	
Federal Highway Administration	FHWA	
Final Environmental Impact Statement	Final EIS	
Flat-tailed horned lizard	FTHL	
Interstate 8	I-8	
Kilovolt	kV	
Kilowatt	kW	
Least Environmentally Damaging Practicable Alternative	LEDPA	
Market Price Referent	MPR	
Megawatt	MW	
Milligram/liter	mg/L	

Full Name	Acronym or Abbreviation
mmhos per centimeter	mmhos/cm
National Environmental Policy Act	NEPA
National Renewable Energy Laboratory	NREL
National Wetlands Inventory	NWI
Natural Resources Conservation Service	NRCS
Naval Air Facility	NAF
Peninsular bighorn sheep	PBS
Power conversion unit	PCU
Power Purchase Agreement	PPA
Programmatic Agreement	PA
Regional Water Quality Control Board	RWQCB
Renewable Portfolio Standard	RPS
Revised Universal Soil Loss Equation	RUSLE2
Right-of-way	ROW
San Diego Gas & Electric	SDG&E
Seeley Waste Water Treatment Facility	SWWTF
Soil Conservation Service	SCS
Soil erosion factor	K
Solar Programmatic Environmental Impact Statement	PEIS
Southern California Coastal Water Research Project	SCCWRP
Staff Assessment/Draft Environmental Impact Statement	SA/DEIS
Supplemental Staff Assessment	SSA
Standard Individual Permit	1P
Stormwater Pollution Prevention Plan	SWPPP
Tessera North America	TSNA
Total dissolved solids	TDS
United States Army Corps of Engineers	Corps
United States Department of Agriculture	USDA
United States Department of Defense	DOD
United States Environmental Protection Agency	EPA
United States Fish and Wildlife Service	USFWS
United States Geological Survey	USGS
Waters of the United States	WUS

# 1.0 Introduction

On November 4, 2009, U.S. Army Corps of Engineers (Corps) received an application from Tessera Solar North America (TSNA) (the Applicant) for a Section 404 Standard Individual Permit (IP) for the Imperial Valley Solar Project (IVSP) previously known as "Solar II". The Applicant sought authorization to fill 165 acres of the total 881 acres of waters of the United States (WUS) supported on a 6.571 acre site (the site) located in Imperial County, California. The site is primarily on federal lands managed by the United Stated Department of the Interior, Bureau of Lands Management (BLM). The original project envisioned would have included the installation of solar generating facilities capable of generating up to 900 megawatts (MW) of electricity on approximately 7,650 acres of land. Site investigation by archeologists hired by the Applicant's and BLM staff archeologists revealed that development in the eastern portion of the larger site would result in significant and unavoidable impacts to sensitive environmental resources. The project was therefore redesigned by the Applicant to avoid these impacts, resulting in a reduction of the developable area to 6,571 acres with the capacity of generating 750 MW of electricity. Since submittal of the Section 404 Corps permit application, the Applicant has further incorporated project revisions as a means of avoiding and minimizing impacts to WUS to the maximum extent practicable. As is described in detail below, this effort has resulted in the identification of project revisions that allow for the avoidance of impacts to aquatic resources (from 177 acres as proposed in the 900 MW Alternative to 38.2 acres of permanent direct impacts associated with fill material).

The following impact analysis is provided in accordance with Section 404(b)(1) of the Clean Water Act. To avoid duplication of pertinent information, there are multiple references to sections within the California Energy Commission (Energy Commission) Staff Assessment/Draft Environmental Impact Statement (SA/DEIS), released on February 12, 2010. The SA/DEIS and additional project details, status, copies of notices, and electronic version of documents filed with the Energy Commission are available under "Documents and Reports" at <a href="https://www.energy.ca.gov/sitingcases/solartwo/">https://www.energy.ca.gov/sitingcases/solartwo/</a>. The analysis within the SA/DEIS has been updated to reflect public comments and additional project information that is being presented in two separate documents, the Supplemental Staff Assessment (SSA) and Final Environmental Impact Statement (Final EIS.) This document is being provided as an appendix to the Final EIS. This draft 404(b)(1) alternatives analysis may be updated upon review of the SSA, further review of the Final EIS, and any new public comments prior to preparation of the Corps Record of Decision (ROD).

# 1.1 Regulatory Setting

Any activity requiring an IP under Section 404 of the Clean Water Act must undergo an analysis of alternatives in order to identify the Least Environmentally-Damaging Practicable Alternative (LEDPA) pursuant to the requirement of the guidelines established by the United States Environmental Protection Agency (EPA), known as the Section 404(b)(1) Guidelines. The Section 404(b)(1) Guidelines prohibit discharges of dredge or fill material into WUS if there is a "practicable alternative to the proposed discharge that would have less impact on the aquatic ecosystem, provided that the alternative does not have other significant environmental consequences." [40 C.F.R. § 230.10(a).]. An alternative is practicable "if it is available and capable of being done after taking into consideration cost, existing technology

and logistics in light of the overall project purposes." [40 C.F.R. §5 230.10(a) and 230.3(q).] "If it is otherwise a practicable alternative, an area not presently owned by an Applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered." [40 C.F.R. § 230.10(a)(2).]

If the proposed activity would involve a discharge into a special aquatic site such as a wetland, the Section 404(b)(1) Guidelines distinguish between those projects that are water dependent and those that are not. A water dependent project is one that requires access to water to achieve its basic purpose, such as a marina. A non-water dependent project is one that does not require access to water to achieve its basic purpose, such as a housing development. Here, the Proposed Project is not water dependent.

The Section 404(b)(1) Guidelines establish two presumptions for non-water dependent projects that propose a discharge into a special aquatic site, such as a wetlands. First, it is presumed that there are practicable alternatives to non-water dependent projects, "unless clearly demonstrated otherwise." [40 C.F.R. § 230.10(a)(3).] Second, "where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise." [Id.] The thrust of the Guidelines is that Applicants should design proposed projects to meet the overall project purpose while avoiding impacts to aquatic environments. This approach is emphasized in a Memorandum of Agreement between the EPA and the Corps Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines (1990) ("MOA") as modified by the Corps and EPA Final Mitigation Rule (33 CFR Parts 325 and 332 [40 CFR Part 230]). The MOA articulates the Guidelines "sequencing" protocol as first, avoiding impacts, second, minimizing impacts, and third, providing practicable compensatory mitigation for unavoidable impacts and no overall net loss of functions and values. These presumptions do not apply to the IVSP as no special aquatic sites are directly impacted by the proposed project.

In addition to requiring the identification of the LEDPA, the Section 404(b)(1) Guidelines mandate that no discharge of dredged or fill material shall be permitted if it causes or contributes to violations of any applicable State water quality standard, 40 C.F.R. 230.10(b)(1), violates any applicable toxic effluent standard or prohibition, 40 C.F.R. § 230.10(b)(2), jeopardizes the continued existence of any endangered or threatened species (or destroy or adversely modify critical habitat), 40 C.F.R. § 230.10(b)(3), or causes or contributes to significant degradation of WUS, 40 C.F.R. § 230.10(c). Prior to completing its review, the Corps also must ensure that the proposed project is not contrary to the public interest. There are 20 public interest factors listed in 33 C.F.R. § 320.4.

# 1.2 Basic and Overall Project Purpose

Basic Project Purpose -The basic project purpose is used to determine whether a proposed project is water dependent (i.e., whether it requires a location that affects waters of the U.S.). The basic project purpose comprises the fundamental, essential, or irreducible purpose of the proposed project, and is used by the Corps to determine whether the applicant's project is water dependent. The basic project purpose for the Preferred Plan Alternative is: "Energy Production." The basic project purpose is not water dependent.

Overall Project Purpose - The overall project purpose serves as the basis for the Corps' Section 404(b)(1) alternatives analysis and is determined by further defining the basic project purpose in a manner that more specifically describes the Applicant's goals for the project, and which allows a reasonable range of alternatives to be analyzed. The overall project purpose is "To provide a solar energy facility ranging in size from 300 Megawatts to 750 Megawatts in Imperial County, California."

#### 1.3 Location

TSNA Imperial Valley Solar Project, a proposed solar thermal electricity generation facility, would be located in Imperial County, California, primarily on public land managed by the BLM. The project site is approximately 100 miles east of San Diego, 14 miles west of El Centro, and 4 miles east of Ocotillo. The following sections or portions of sections within Township 16 of the San Bernardino Meridian, identify the project site and the planned boundary for development of the Imperial Valley Solar Project. A regional overview map is included in Figure 1 and the proposed project description is included in Figure 2. The project is proposed for location within U.S. Geological Survey (USGS) 7.5-minute map quadrangles; Plaster City, Painted Gorge, and a small portion on Coyote Wells.

- · Within Township 16 South, Range 11 East of the San Bernardino Meridian defined by:
  - the portion of Section 7 south of the railroad right-of-way (ROW),
  - the portion of the southwest quarter section and the north half of the southeast quarter section of Section 9 south of the railroad ROW,
  - the southeast quarter-quarter section of the northeast quarter section and the east half of the southeast quarter section of Section 14 north of the Interstate 8 (I-8) ROW and east of Dunaway Road,
  - the southwest, northwest, and southeast quarter-quarter sections of the southwest quarter section of Section 15, and the southwest quarter-quarter of the southwest quarter section of Section 15.
  - the northwest guarter and southeast guarter of Section 16.
  - all of Section 17,
  - Section 18, excluding the southwest and southeast quarter-quarter sections of the northeast quarter section,
  - the northwest quarter and the portion of the west half of the southwest quarter of Section 19 north of the I-8 ROW.
  - the portion of Sections 20 and 21 north of the I-8 ROW, and
  - the portion of the north half of the northwest quarter section and the northwest quarter-quarter section of the northeast quarter section of Section 22 north of the 1-8 ROW.
- Within Township 16 South, Range 10 East of the San Bernardino Meridian defined by:
  - the portions of Sections 12, 13, and 14 south of the railroad ROW,
  - the portions of Section 22 south of the railroad ROW,
  - all of Sections 23 and 24, and
  - the portions of Sections 25, 26, and 27 north of the I-8 ROW.

Generally, the proposed site boundary consists of the Union Pacific Railroad on the north and I-8 on the south. The eastern boundary is approximately 1½ mile west of Dunaway Road; and the western boundary is the westerly section line in Section 22 in Township 16 South, Range 12 East. An additional 125 acre construction area is located east of Dunaway Road. The

proposed IVSP would also include an electrical transmission line, water supply pipeline, and a site access road. An off-site 6-inch-diameter water supply pipeline would be constructed a distance of approximately 11.8 miles from the Seeley Waste Water Treatment Facility (SWWTF) to the project boundary. The water supply pipeline would be routed in the Evan Hewes Highway right-of-way (ROW), or adjacent to this ROW on public and private lands. Approximately 7.56 miles of the 10.3-mile double-circuit generation interconnection transmission line would be constructed off-site. The transmission line would connect the proposed IVSP substation to the existing SDG&E Imperial Valley Substation. A site access road would be constructed from Evan Hewes Highway to the northern boundary of the project site as shown in Figure 2.

# 1.5 General Description

The proposed IVSP would be a 750 MW Stirling engine project, with construction planned to begin in the fall of 2010. The primary equipment for the generating facility would include approximately 30,000, 25-kilowatt (KW) SunCatchers (e.g. 30,000 x 25KW = 750,000 KW or 750MW), their associated equipment and systems, and their support infrastructure. The SunCatcher is a 25-KW solar dish that is designed to automatically track the sun and collect and focus solar energy onto a power conversion unit (PCU), which generates electricity. The system consists of a 38 foot high by 40 foot wide solar concentrator in a dish structure that supports an array of curved glass mirror facets. These mirrors collect and concentrate solar energy onto the solar receiver of the PCU. The SunCatcher dish is mounted on a 2 foot diameter, round steel pipe that is hydraulically vibrated into the ground to a depth of approximately 17 feet. No mass site grading is required to install the solar field.

The proposed 6,571 acre project site includes approximately 6,251 acres of federal land managed by the BLM and approximately 320 acres of privately-owned land.

The project would be constructed in two phases. Phase I of the project would consist of up to 12,000 SunCatchers configured in 200 1.5-MW solar groups of 60 SunCatchers per group and have a net generating capacity of 300 MW. The renewable energy from Phase I would be transmitted via the existing 500-kllovolt (kV) SDG&E Southwest Powerlink transmission line. The project would be connected to the grid at the SDG&E Imperial Valley Substation via a 10.3-mile long, 230-kV interconnection transmission line that would be constructed as part of the project in a corridor parallel to the existing Southwest Powerlink transmission line. Phase I would require approximately 2,846 acres.

The 450-MW Phase II would add approximately 18,000 SunCatchers; expanding the project to a total of approximately 30,000 SunCatchers configured in 500 1.5-MW solar groups with a total combined net generating capacity of 750 MW. Phase II would require an additional approximately 3,725 acres of the project site. The additional 450 MW generated in Phase II would require a new transmission capacity within the grid. This is anticipated to be provided by the proposed 500-kV Sunrise Powerlink (or equivalent) transmission line (assumed to be a project independent of the Imperial Valley Solar Project). The construction and operation of Phase II is contingent on the development of either the Sunrise Powerlink transmission line or additional transmission capacity in the SDG&E transmission system.

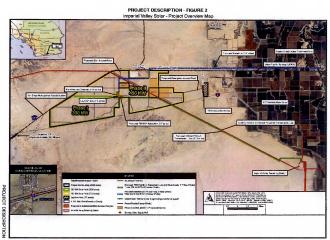
The proposed IVSP would also include office and maintenance buildings, evaporation ponds, an electrical transmission line, water supply pipeline, a site access road, interior arterial and maintenance roads and a perimeter road. A new 230-kV substation would be constructed approximately in the center of the project site. This new substation would be connected to the existing SDG&E Imperial Valley Substation via an approximately 10.3 mile, double-circuit, 230 kV transmission line. Approximately 7.56 miles of the new line would be constructed off-site.

The water supply pipeline would be constructed a distance of approximately 11.8 miles from the SWWTF to the project site. The water pipeline would be routed in the Evan Hewes Highway ROW to Plaster City, entering the project site at that location. A site access road would be constructed from Dunaway Road to the eastern boundary of the project site, generally following an existing road.

#### PROJECT DESCRIPTION - FIGURE 1 Imperial Valley Solar - Regional Overview Map



CALIFORNIA ENERGY COMMISSION, SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION SOURCE: CSR I triago - Multinet 09 Roads- URS Corp.



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION SOURCE: URS

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# 2.0 Alternatives Analysis

# 2.1 Off-Site Alternatives

As described in the IP application and required by the Section 404(b)(1) Guidelines, the Corps evaluated alternative project sites to determine if there is an alternative site available on which the proposed project could be constructed that would involve fewer impacts to aquatic resources than the proposed project and would not have additional concomitant adverse impacts to other sensitive resources such as listed species. This involved a two-tiered review. First, alternative sites were subject to a detailed evaluation of the key siting criteria required for similarly sized, concentrating solar projects. Input was obtained on potential alternative locations through discussions with the Energy Commission, the California Independent Systems Operator, and the BLM. The "key siting criteria" are described below.

## Key siting criteria include:

- Size: The site must be able to support construction of a comparably sized solar energy facility that meets the overall project purpose, a minimum of 300MW and up to 750-MW of energy.
- Regional Location: The site must be located in an area of long hours of sunlight (low cloudiness), solar insolation should be at least seven kilowatt-hours per square meter per day (7 kWh/m2/day); the site must be relatively flat with a grade less than 5%; the site must have a wind speed less than 35 miles per hour 98% of the time.
- Proximity to Utilities: The site must be located in close proximity to high-voltage CAISO transmission lines with adequate capacity and must have an adequate water supply; the site must have ease of access for construction vehicles and close proximity to existing roads.
- Availability: The land must be available for sale or use as a utility-scale solar
  facility. Alternative sites must be available for purchase and development within a
  reasonable time frame (e.g. the number of parcels and landowners contribute to
  these criteria). Sites for which there is a pending application for use would not
  available for development of the proposed project.
- Constructability: The proposed use should be consistent with existing laws, ordinances, regulations and standards. Sites located within Department of Defense "no fly." "no build" areas would preclude installation of the proposed project.

The following six off-site alternative sites were evaluated:

- 1. Alternative Site 1 (AS-1)
- 2. Alternative Site 2 (AS-2)
- 3. Alternative Site 2 (AS-3)
- 4. Mesquite Lake Site
- 5. Agricultural Lands
- 6. South of Highway 98

The locations of these off-site alternatives are shown in Attachment A. Additional detailed descriptions of these alternatives and a discussion of why they were selected are included in Section B.2 of the SA/DEIS and likely expanded in the SSA, which has not yet been reviewed by the Corps. Off-site alternatives were not analyzed as part of the Final EIS because they did not require any action by BLM (e.g. BLM can't issue a ROW on private land) and subsequently would not meet the BLM project purpose and need. These reasons are summarized in Section 2.8.2 of the Final FIS.

After evaluation with the siting criteria, each alternative that met these criteria was further screened for environmental impacts to WUS and sensitive species habitat to evaluate if they would be likely to have greater environmental impacts than the proposed project. If so, the alternative was not carried through the practicability analysis. In order to complete this comparison, the density and type of WUS, including wetlands and biological resources on each potential off-site alternative location were evaluated by the Applicant in December 2009 through additional field surveys and aerial interpretation site conditions. A summary of these findings and analysis are included in Table 1.

## Environmental factors for post-siting screening:

- Streams: The density of intermittent streams, total length of intermittent or ephemeral streams, and total Corps WUS on the land should be similar to or less than the resources supported in the proposed project site. Table 1 includes the density and length of intermittent and ephemeral streams for each off-site alternative as mapped by the USGS National Hydrologic Dataset (USGS 2008). Potential WUS for each site was estimated using the acres of jurisdictional WUS for the proposed project site, the density of mapped intermittent and ephemeral streams for the proposed site, and extrapolating for the off-site alternatives. The WUS also include acres of wetlands mapped for the National Wetlands Inventory (NWI) as described below (USFWS 2008).
- Presence of Special Aquatic Sites: Special aquatic sites, including wetlands, afford
  additional protection under the CWA and provide habitat for sensitive wildlife species
  such as the Yuma clapper rail. In order to estimate the presence of special aquatic
  sites on each property, the Applicant provided a review of the National Wetlands
  Inventory (NWI) and provided the acres of mapped wetlands in Table 1 (USFWS 2008).
- Presence of Federally-listed Species: The Imperial Valley has several listed species
  as described in greater detail in Section 3.3.2. Table 1 includes acres of mapped
  potential habitat for the FTHL for the off-site alternatives (FTHL; ICC 2003) and for
  the Peninsular bighorn sheep (PBS; USFWS 2000).

# 2.2 Screening of Off-Site Alternatives

Table 1 provides a summary of the siting and environmental screening criteria for the off-site alternatives. Sections 2.2.1-2.2.6 provide details on why only offsite alternatives AS-3 and the Agricultural Lands meet the siting criteria.

Table 1. Summary of Off-Site Alternatives

Siting Criteria Measures	AS-1	AS-2	AS-3	Mesquite Lake	Agricultural Lands	South of Hwy 98
Land Area (acres)	7,195	8,818	5,007	5,112	4,103	5,833
Estimated MW <sup>1</sup>	830	1,017	578	590	473	672
		Cost an	d Availabilit	y Criteria	E F T	
Number of Landowners	3+	2+	2+	52	3+	1
Number of Land Parcels	1	1	1	70	7	1
Available Land Use	No	No	Yes	Yes	Yes	Yes
		Envi	ronmental C	riteria		
Density of Intermittent Streams (Miles/Square Mile)	2.2	1.5	1.3	0	0.5	0
Length of intermittent or Ephemeral Streams (Miles)	25.2	20.0	9.8	0	3.2	0
Waters of the US (acres)2	2,737	2,174	1,069	716	346	291
National Wetlands Inventory Wetlands <sup>3</sup>	0	0	0	716	0	291
Potential FTHL Habitat <sup>4</sup>	100.0%	100.0%	0.1%	0.0%	29.9%	
Designated USFWS PBS <sup>5</sup> Critical Habitat	10.6%	15.1%	0.0%	0.0%	0.0%	
Meets Siting Criteria?	No - Does not meet "constructab ility" criteria (e.g. located in DOD no- fly, no-build zone.)	No - Does not meet "constructabili ty" criteria (e.g. located in DOD no-fly, no- build zone.)	Yes	No - Does not meet "availability" criteria (e.g. the number of landowners and parcels are substantially large). Additionally, this site supports a high number of wetlands relative to the project site	Yes	The particular full

<sup>1-</sup>Assumes similar spacing as proposed project or 8.67 acres per MW (6,500 acres/750MW)

<sup>&</sup>lt;sup>2</sup> – Waters of the US were estimated for each site based upon the miles of intermittent or ephemeral streams within the alternative site (USGS 2008) and the acres of waters of the US mapped for the Proposed Project (881 acres). <sup>3</sup> – NWI mapping was obtained from the USFWS (2008).

<sup>&</sup>lt;sup>4</sup> – Potential FTHL habitat based on current distribution mapping from the FTHL Management Strategy (FTHL ICC 2003).

<sup>5 –</sup> PBS USFWS Critical Habitat Mapping was created by the USFWS in 2006.

#### 2.2.1 Alternative AS-1

This 7,195 acre site is located primarily on BLM land (80%) with some private in-holdings (18%) and state lands (1%) [MVP1] and [MVP2] along the border between 5an Diego and Imperial counties approximately 30 miles north of the proposed project location as shown in Figure 1 of Attachment A. This site is located in a Department of Defense (DOD) "no-fly" and "no build" restricted area. In December 2007, OptiSolar, Inc submitted an application to the BLM for use of a portion of this site for construction and operation of a 500 MW photovoltaic solar facility.

Siting Criteria Review: Off-site Alternative AS-1 was eliminated as an alternative location for the proposed project because it is located within a DOD "no fly" and "no build" restricted area. Additionally, it is not available for development of the proposed project as there is an application pending for development of a photovoltaic solar facility on a portion of the site. This site does not meet the availability and constructability siting criteria.

#### 2.2.2 Alternative AS-2

This 8,818 acre site is located primarily on BLM land (62%) with some private in-holdings (38%) east of AS-1 approximately 30 miles north of the proposed project location as shown in Figure 1 of Attachment A. This site is located in a DOD "no-fly" and "no build" restricted area. In December 2007, OptiSolar, Inc submitted an application to the BLM for use of a portion of this site for construction and operation of a 500 MW photovoltaic solar facility.

Siting Criteria Review: Off-site Alternative AS-2 was eliminated as an alternative location for the proposed project because it is located within a DDD "no fly" and "no build" restricted area. Additionally, it is not available for development of the proposed project as there is an application pending for development of a photovoltaic solar facility on a portion of the site. This site does not meet the availability and constructability siting criteria.

#### 2.2.3 Alternative AS-3

This 5,007 acre site is located primarily on BLM land (96%) with some private in-holdings (4%) approximately 30 miles north of the proposed project location as shown in Figure 1 of Attachment A.

Siting Criteria Review: Alternative AS-3 meets the siting criteria and it was analyzed for practicability, the results of which are described below in Section 2.3.

## 2.2.4 Mesquite Lake

This site is disturbed land that is zoned for industrial use. Figure 2 of Attachment A shows the site boundaries and details. The Mesquite Lake site encompasses approximately 5,100 acres of land. However some of this land is already in use by the Holly Sugar Plant, the Mesquite Lake Recovery Facility, and the Imperial Valley Resource Recovery Plant. The Mesquite Lake Specific Plan Area is made up of approximately 70 parcels with 52 land owners.

Siting Criteria Review: The Mesquite Lake alternative site is not available for purchase and development within a reasonable timeframe due to the large number of parcels and individual land owners (e.g. 70 parcels and 52 landowners), which makes securing the site impracticable. Therefore, this site does not meet the "availability" criteria. Additionally, the Mesquite Lake site supports approximately 716 acres of wetlands roughly mapped by the National Wetlands Inventory (NWI) that may also be Corps jurisdictional wetlands WUS. Development of this site would likely result in greater impacts to WUS, particularly to wetlands relative to the proposed project site.

## 2.2.5 Agricultural Lands.

This site was considered because it would use some of the existing disturbed low-quality agricultural land in Imperial County (Figure 3 in Attachment A). This alternative consists of 25 parcels aggregated into 7 different parcel groups. The parcel groups range in size from 40 acres to 1,435 acres totaling approximately 4,100 acres. Figures 2 and 4 of Attachment A show the size and location of the seven disconnected parcel groups.

Siting Criteria Review: The Agricultural Lands Alternative meets the siting criteria and therefore it was analyzed for practicability, the results of which are described below in Section 2.3.

## 2.2.6 South of Highway 98.

The South of Highway 98 Alternative is located on BLM designated land that is operated by the Bureau of Rectamation (Figure 4 of Attachment A). This site was recently identified by the BLM and Department of Energy (DOE) for in-depth study completed for the preparation of a draft Programmatic Renewable Energy Environmental Impact Statement (PEIS). The maps obtained for this alternative were dated June 30, 2009. Figures 2 and 5 of Attachment A show the location of this site approximately four miles southeast of the greater EI Centro area and along the US/Mexico international border. This site totals approximately 5,833 acres and the All American Canal flows through the site. National Wetlands Inventory (NWI) mapping for the area includes palustrine shrub/scrub and emergent wetlands adjacent to the All American Canal (USFWS 2008). The NWI mapping includes approximately 172 acres of palustrine scrub/shrub habitat and 6 acres of emergent wetlands within the alternative site boundaries. Assuming a project lay-out similar to the proposed project with a land requirement of 8.67 acres per MW, the land area of this alternative could accommodate approximately 672 MW.

Siting Criteria Review: The South of Highway 98 site meets the siting criteria; however, the site supports approximately 291 acres of wetlands roughly mapped by the National Wetlands Inventory (NWI) that may also be Corps jurisdictional wetlands WUS. Given the reduced size of the alternative site, the Corps assumes that substantial avoidance of these wetlands resources would not be practicable. Construction on this site would likely result in impacts to WUS, particularly to wetlands WUS compared to the proposed project which does not impact wetlands, that are greater than the proposed project. Therefore, the South of Highway 98 alternative site meets the siting criteria, but results in substantially more environmental effects and was subsequently not evaluated for practicability because it's unlikely to be the

# 2.3 Practicability of Alternatives

# 2.3.1 Practicability Criteria

The following criteria were used to screen the practicability of off-site and on-site alternatives.

# 2.3.1.1 Project Purpose

To be practicable, an alternative must meet the overall project purpose, which is "To provide a solar energy facility ranging in size from 300 Megawatts to 750 Megawatts in Imperial County, California."

#### 2.3.1.2 Cost Criteria

In order to be practicable, an alternative must allow for the creation of an economically viable utility-scale solar project. An alternative must allow for the generation of a sufficient amount of electricity at a low enough cost to allow for the sale of the electricity at a rate that is acceptable to the regulated utilities in California. This is calculated by integrating several major components, the cost of constructing the project, which is based primarily on the size of the project, and the price that the energy generated can be sold.

Practicability for the IVSP depends on TSNA being able to negotiate a PPA with a California electric utility that meets the capital and financing requirements for the project. The final terms of this agreement are determined by the price the utility is willing-to-pay for the power and by the costs to generate that power. Some of the factors that influence price and costs of power from the IVSP are discussed below. Fundamentally, the price of the electric power negotiated between a California utility and TSNA must not be higher than regulated price requirements, but the price must be high enough to cover project costs.

# **Price Ceiling**

The price that California utilities are willing-to pay for electricity generated by the IVSP is set, in part, by the California Public Utilities Commission (CPUC) which regulates power purchases by California's largest utilities. Before a PPA is finalized, the CPUC must find that the prices in the PPA are fair and reasonable to consumers.

The CPUC sets a price ceiling for the purchase of renewable power in the annual Market Price Referent (MPR) [CPUC Resolution E-4298 December 17, 2009]. The MPR values are used in the RPS solicitations issued by electric utilities to purchase the power that they need to meet the RPS requirements<sup>1</sup>. In other words, the MPR values serve as the price reasonableness benchmark for renewable PPAs. The power provided by the IVSP falls into this category of power purchase.

<sup>&</sup>lt;sup>1</sup> The RPS program administered by the CPUC requires each utility to increase its total procurement of eligible renewable energy resources by at least one percent of retail sales per year so that 20 percent of the utility's retail sales are procured from eligible renewable energy resources no later than December 31, 2010.

In determining the reasonableness of RPS power purchase contracts, the CPUC compares the levelized all-in costs of each long-term RPS contract on a dollar per megawatt-hour (5/MWh) basis to the MPR, and to the prices in other renewable PPAs and bids by developers for renewable PPAs. The goal is to compare an RPS contract's costs to the costs of the presumptive conventional alternative such as natural gas-fired generation. The MPR is updated annually and driven primarily by natural gas prices. Since natural gas prices have dropped significantly between 2008 and 2009, the MPR is trending downward (see Table 2). In addition, rapidly dropping prices for photovoltaic (PV) panels has placed significant downward price pressure on PPA bids for non-PV solar projects.

Table 2. Comparison of 2008 and 2009 Market Price Referent Prices

PPA Contract Start Date	2008 MPR (\$/MWh)	2009 MPR (\$/MWH)	Difference between 2008 and 2009 MPR
2010	\$ 113.90	\$ 96.74	-18%
2011	\$ 117.30	\$ 100.98	-16%
2012	\$ 121.26	\$ 105.07	-15%
2013	\$ 125.27	\$ 108.98	-15%
2014	\$ 128.97	\$ 112.86	-14%
2015	\$ 132.90	\$ 116.47	-14%
2016	\$ 137.06	\$ 120.20	-14%
2017	\$ 141.44	\$ 124.04	-14%
2018	\$ 146.03	\$ 128.00	-14%
2019	\$ 150.80	\$ 132.09	-14%
2020	\$ 155.78	\$ 136.30	-14%

Utilities have the option to negotiate prices higher than the MPR and risk disapproval by the CPUC or they can tap into the Above Market Funds (AMF), if available. In SDG&E's case, the \$69 million AMF allocation had been fully utilized by May 2009; SDG&E's AMF balance is zero. The combination of a decreasing MPR, exhausted AMF balances, and rapidly dropping PV prices is increasing pressure on renewable power generators such as TSNA to keep costs as low as possible and offer power at prices close to the MPR.

## Cost of Electricity from Imperial Valley Solar Project

The cost of power from the IVSP is related to several factors including the cost to manufacture the Stirting Energy Systems SunCatchers and the capital cost to construct the project facilities. The cost of power from IVSP is premised on high volume production of SunCatchers. Each SunCatcher is assembled from component parts that are manufactured in former automobile manufacturing facilities in the United States. The cost to manufacture a single part is reduced with each additional part that is manufactured. The cost for a SunCatcher is reduced by as much as 50% if there is a high volume of SunCatchers

manufactured compared to a low volume scenario. The higher cost for low volume manufacturing is due to the difficulty and cost premium required to get suppliers to dedicate manufacturing capacity to manufacture specialty parts for the SunCatcher, as well as higher materials costs because the materials that are purchased in lower quantities. Additionally, setup and tooling costs are spread across fewer parts. Therefore, for every MW that the IVSP is reduced by, the cost of each individual SunCatcher increases.

Similarly, the capital cost to construct a reduced MW IVSP would be higher on a \$/MW basis because the cost of common facilities would be spread across fewer installed generators. Some of the common facilities that have to be constructed and sized the same, no matter what the size of the final IVSP include:

- Necessary transmission lines (10.3 miles of 230kV transmission lines on the proposed project site)
- Necessary water supply lines (11.8 miles of water supply line from the SWWTF for the proposed project site)
- Wastewater treatment facilities
- · Hydrogen production facility
- · Maintenance building
- · Administration building
- Access roads

The arrangement of the SunCatcher generator groups also has a measurable impact on construction costs. For example, SunCatcher generator groups that are arranged in a standard grid format allow for standard cable and conduit lengths that can be pre-cut and installed directly. For non-standard generator groups, conduit and cables must be measured and cut on-site increasing labor and materials costs as well as increasing installation time. Therefore, construction costs would be higher the greater the number of non-standard SunCatcher generator groups that are included in a project.

Price Ceiling for Electricity from Imperial Valley Solar Project

TSNA has negotiated a PPA with SDG&E for the electricity generated by the IVSP. This PPA was negotiated assuming the costs and efficiencies associated with the proposed project (750 MW). Specifically, these assumptions include a construction cost of \$2,950/kW or a total construction cost of \$2,212,500,000. As discussed above, changes to the size, arrangement, or location of the proposed project would increase construction costs. SDG&E has stated that it would not under any circumstances increase the price paid for the energy generated by the IVSP. Therefore, the price ceiling for the IVSP is set by the PPA and any changes to the proposed project that increase costs would make the project less practicable. TSNA has determined that it is practicable to absorb an increase of \$50 per kW; any increase in excess of this amount would render an alternative not practicable.

## 2.3.1.3 Logistics Criteria

In order to be practicable, an alternative must allow for a cost effective layout of SunCatchers and related necessary infrastructure that minimizes ground disturbance and environmental impacts. There are a number of logistical considerations that constrain the engineering layout of the proposed action both on and off-site. These constraints include industry and/or regulatory design standards usually having to do with safety and in other cases are driven by design efficiencies having to do with cost controls and/or best engineering practices. These include:

## SunCatcher Groupings:

- Spacing: SunCatchers must be spaced at least 60 feet x 112 feet apart and potentially
  farther apart depending on surrounding grade. Spacing is dependent upon the site
  latitude and the slope of the natural terrain. Shading will cause a differential heating
  of the SunCatcher heat exchanger which will adversely affect the operation and life of
  the Stirling Engine. Because of this spacing requirement, larger land parcels provide
  better configuration options to avoid sensitive resources (refer to siting criteria
  above).
- Configuration: SunCatchers must be bundled together in 1.5 MW (60 SunCatchers) and then into 9 MW generation groups (360 SunCatchers) in order to utilize standard utility electrical transformers and equipment. The SunCatcher units are required to be placed in a rectangular grid pattern in order to maximize the efficient conversion of solar energy directly into utility grade electric current. Configuring SunCatchers into non-standard configurations creates transmission and hydrogen system operation restrictions/inefficiencies due to the increase in resistance of the transmission lines and pressure drops in the hydrogen distribution system. A standard 1.5 MW group includes 7,000 feet of electrical wire and 7,000 feet of hydrogen piping (Figure 3). If the configuration changes from a standard group to a non-standard configuration as shown in Figure 3, the costs can increase up to 8% based upon the extra length and the efficiency of the electrical line decreases up to 3%, thus reducing overall plant output. The extra length of trenching needed to accommodate these non-standard configurations also increases ground disturbance (trenching) which increases impacts to site resources (soils, vegetation, etc.). The added length of utilities also increases compression requirements for the hydrogen system thereby increasing noise and emissions. Spreading out a 1.5 MW group lowers the efficiency of the system and increases the infrastructure and operation costs. For the proposed project, deviations of more than 50% of the generator groups to non-standard configurations would render the alternative impracticable.

The bundling of the 1.5 Mw and the 9 Mw generation groups allows the economic development of the SunCatcher field by having the ability to standardize lengths for electrical connection wires and hydrogen gas tubing. The electrical connections and hydrogen tubing connections can be precut and the ends terminated at the factory allowing better electrical terminations with the factory installed terminals for the electrical lines and leak free fittings for the welded hydrogen connections. The standardization of the electrical connections and hydrogen connections saves installation time, labor costs and material costs. The non-standard units require the

installation field technicians to field measure each nonstandard run, cut the cable from a spool of wire or stainless steel tubing spool and hand fit the termination lugs for the electrical connections or field weld the connections for the hydrogen tubing.

Isolation: The isolation of SunCatcher groups, removing groups from the site grid layout to accommodate resource or land feature avoidance, has an exponentially greater impact on operational design efficiency and cost relative to that described for standard versus non-standard generator group configurations. In some instances these factors would render an isolated group of SunCatchers impracticable due to logistics and cost. For example, if the placement of SunCatchers in Wash K and Wash A was avoided (Corps Drainage Alternative #1) the area of land between these drainages would not be utilized for any plant development. Length of utilities would have to be significantly lengthened in order to bundle utility crossings and roads into the fewest possible to return to the main layout grid. For this example over 45 utility and maintenance road crossings of these washes would have to be bundled into a number of crossings deemed adequate for meeting the purpose for the avoidance. Additionally, bundling utilities in this way would require that hydrogen system compressors be upsized due to the increase of friction loss within the distribution system from spreading out the SunCatcher field.

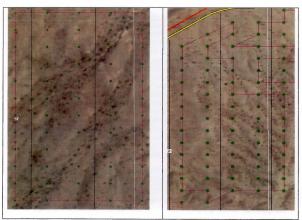


Figure 3. Comparison of a standard 1.5 MW group (left) and a non-standard 1.5 MW group (right).

Topography: SunCatchers in rugged (hilly) terrain require grading to eliminate shading
from one unit to the next and to create a safe operating slope for the maintenance
cranes and lift equipment. The maintenance roadways that access SunCatchers rows
also require additional earth work (at an additional construction cost) to insure worker
and equipment safety during transportation and various maintenance operations.
Maintenance slopes are limited to 10% for service crane safety. SunCatchers would not
be installed where grades are greater than 5%.

### Roads Layout:

- The arterial roads will serve as the main routes for maintenance technicians servicing
  the units. Maintenance roads 10 feet in width are placed between every other row of
  SunCatchers and are necessary for accessing the units by maintenance technicians to
  service and periodically wash the units. There will be a 10 foot wide perimeter road
  adjacent to the fence line for plant security as required by the Energy Commission.
- Each SunCatcher must be accessible from a road to allow for necessary maintenance; elimination of access roads would result in elimination of SunCatcher units and groups. Maintenance roads must be configured to avoid dead ends and ensuring that each connects to an arterial road, be no less than 10 feet wide, and only one way traffic will be allowed. Maintenance roads also need to be able to access every SunCatcher.
- Roadway widths are per American Association of State Highway and Transportation
  Officials Geometric Design of Highways and Streets, page 312, Paragraph 2, "Lanes 3.0
  m [10 feet] wide are acceptable on low-speed facilities, and lanes 2.7 m [9 feet] wide
  are appropriate on low-volume roads in rural and residential areas."

## Main Service Complex:

• In order to minimize costs for interconnection of the SunCatchers to the transmission grid, for travel access roads to the site, and for other common facilities that provide services to the entire project site, at any site utilizing the SunCatcher technology, the Main Services Complex needs to be approximately centrally located, providing the shortest average distance to the farthest points of the project site.

## 2.3.1.4 Technology Criteria

Existing Technology was determined by the Corps to have no bearing on the practicability analysis because all alternatives analyzed propose use of the same solar technology (e.g. Stirling Energy SunCatchers).

# 2.4 Practicability of Off-Site Alternatives

In considering the practicability of the off-site alternatives that were not eliminated by the siting criteria (AS-3 and Agricultural Lands), the Corps analyzed alternative project configurations for each site. Table 3 summarizes the practicability analyses for the AS-3 and Agricultural Lands off-site alternatives. Sections 2.4.1 and 2.4.2 below provide further detail for each of the practicability criteria and explain why neither alternative is practicable.

Table 3: Summary of Off-Site Alternative Preliminary Project Design

Practicability Criteria	Alternative AS-3	Agricultural Lands
Meets Cost Criteria	No - The additional 17 miles of transmission line combined with the smaller overall capacity (578 MW) would increase the production approximately \$140/kW compared to the proposed project.	No - The seven discontinuous sites would require additional infrastructure for power collection. In addition, the site's overall capacity is only 473 MW. This would increase production costs \$259/kW compared to the proposed project.
Meets Logistics Criteria	Yes	No - The discontinuous parcels would require the construction of multiple isolated groups of SunCatchers. It would be infeasible to collect power from all of these parcels. In addition, there is no ideal site for a centrally located Main Services Complex, and reasonable road system and security fencing would not be possible.
Environmental Considerations	This alternative would have similar impacts onsite as the proposed project. However, the additional 17 miles of transmission line would increase off-site impacts by 193 compared to the proposed project.	Similar to the proposed project.
Practicable	No	No

<sup>&</sup>lt;sup>1</sup>- Assumes similar spacing as proposed project or 8.67 acres per MW (6,500 acres/750 MW).

#### 2.4.1 Off-Site Alternative AS-3

Overall Project Purpose: Off-Site Alternative AS-3 is estimated to have approximately 5,007 acres available for development. Assuming a project lay-out similar to the proposed project with a land requirement of 8.67 acres per MW, the land area of AS-3 could accommodate approximately 578 MW. This represents a reduction in 23% of the renewable energy, but meets the Overall Project Purpose due to its capability of producing between 300MW and 750MW of alternative energy.

Cost: Based on the preliminary design for this site, the cost to develop a project at this alternative location will be similar to the proposed project location except for the difference in transmission and water supply line costs. Assuming a cost of \$1.5 million per mile for transmission line and \$400,000 per mile for water supply line, the net cost difference between implementing the proposed project at the AS-3 location and the proposed location would be an additional \$23.1 million, which amounts to approximately \$40/kW. In addition, because the size of this site will only accommodate 578 MW, the construction costs for this project would be approximately \$3,200/kW or \$100/kW more than the proposed project. These additional construction costs are associated with low volume Supfacther production

and the cost of infrastructure facilities such as substations, transmission, and water supply being spread across a lower amount of total generation. Therefore, the estimated cost to construct a project at the AS-3 location would be approximately \$140/kW greater than the proposed project. These exceed the cost criteria and would not be a practicable project.

Logistics: The logistics for the proposed project at the AS-3 location would be similar to the proposed project location except that 17 additional miles of right-of-way would be required for the extended length of overhead transmission line. There would be a 5.5 mile reduction in the length of right-of-way needed for the buried water supply pipeline. This alternative meets the logistics criteria.

Technology: Existing technology was determined by the Corps to have no bearing on the practicability analysis because all alternatives analyzed propose use of the same solar technology (e.g. Stirling Energy SunCatchers).

Environmental: Based on a review of aerial photographs of the site and other data available for the AS-3 location, the Corps estimates that there are approximately 9.8 miles of intermittent or ephemeral streams (USGS 2008) amounting to approximately 1,069 acres of WUS that could be impacted by development at this alternative location (Table 1). This is higher than the miles of intermittent or ephemeral streams and WUS at the proposed project location. Given the smaller size of the project site and therefore reduced opportunities to avoid aquatic resources at this location, it is assumed that development of the proposed project at this location would result in a higher level of impacts to WUS.

AS-3 is located in similar desert scrub habitat to the proposed site and it is expected that similar wildlife species to the proposed site would be present. The Mesa Flat-tailed Horned Lizard Management Area is located immediately adjacent to the west side of the site; however, the entire site is located just outside of mapped potential FTHL habitat. The desert scrub habitat is likely potential forage habitat for PBS and designated critical habitat is 11 miles west of the site. This alternative was not evaluated in detail in the SA/DEIS or SSA because the Energy Commission noted that it would have similar impacts as the proposed project (CEC 2010) and thus no reduction to environmental affects would be achieved.

Conclusion: This alternative does not meet the cost criteria and would result in greater environmental impacts due to greater disturbance to surface resources; therefore, it is not likely to result in the LEDPA.

## 2.4.2 Agricultural Lands

Overall Project Purpose: The Agricultural Lands Off-Site alternative is estimated to have about 4,103 acres available for development. Assuming a project lay-out similar to the proposed project with a land requirement of 8.67 acres per MW, the land area of this alternative could accommodate approximately 473 MW. This represents a reduction in 37% of the renewable energy, but it meets with the overall project purpose due to its capability of producing between 300MW and 750MW of alternative energy.

Cost: Based on a preliminary design for this location, it is estimated that approximately 4.5 miles of transmission line and 1.5 miles of water supply line will be required. Because this

off-site alternative is comprised of seven different land parcels across a 100 square mile area, there would be additional costs for a power collection system including an additional substation. Assuming a cost of \$28.1 million for additional power collection, the net cost difference between implementing the proposed project at the Agricultural Lands location and the proposed location would be an additional \$4.1 million or \$9/kW. In addition, because the size of this site will only accommodate 473 MW, the construction costs for this project would be approximately \$3,200/kW or \$250/kW more than the proposed project. These additional construction costs are associated with low volume SunCatcher production and the cost of infrastructure facilities such as substations, transmission, and water supply being spread across a lower amount of total generation. Therefore, the estimated cost to construct a project at the A5-3 location would be approximately \$259/kW greater than the proposed project. These exceed the cost criteria and would not be a practicable project.

Logistics: The logistics for the proposed project at the Agricultural Lands location would be very problematic relative to the proposed project location as SunCatcher groups and utilities and roads would be dispersed across seven discontinuous different land parcels. This fragmentation of the development area would not allow for a similar continuous grid layout as the proposed action and therefore would likely be smaller than the estimated 473 MWs. The irregular configuration of the facility, essentially building isolated groups of SunCatchers, does not provide for cost efficient generation of power nor a reasonable utility collection or transportation network for the site(s). Further, it is uncertain that this site could accommodate a centrally located main services complex nor be reasonably secure as no perimeter fence or road would be possible. This alternative does not meet several logistics criteria.

Technology: Existing Technology was determined by the Corps to have no bearing on the practicability analysis because all alternatives analyzed propose use of the same solar technology (e.g. Stirling Energy SunCatchers).

Environmental: Based on a review of aerial photographs, field visits by the applicant, and using data available for this location, the Corps recognizes that there are several different potentially jurisdictional water features within the seven parcels that constitute the Agricultural Lands Alternative. Parcel BL-1 is located on the edge of the agricultural lands and a small section of desert scrub habitat with 0.4 miles of ephemeral streams mapped. The remaining parcels (BL-2 to BL-7) are located within the agricultural lands of the Imperial Valley. There are approximately 9.7 miles of mapped canals that traverse these parcels that may or may not have adjacent wetland areas. In addition, Greeson Wash bisects parcels BL-4 and BL-5 and is mainly fed by irrigation. During a site visit, it was observed that parcel BL-4 has patches of tamarisk and common reed (*Phragmites australis*). It is likely that the ephemeral washes within BL-1, some portion of the irrigation ditches, and Greeson Wash would be considered jurisdictional by the Corps. Given the smaller size of the project site and therefore reduced opportunities to avoid aquatic resources at this location, it is assumed that development of the proposed project at this location would result in a higher level of impacts to both intermittent and ephemeral WUS.

Parcel BL-1 is located on fallow agricultural fields which has reverted back to Sonoran mixed salt desert scrub and Colorado desert wash scrub which is similar to the proposed project. This parcel would have similar wildlife species to the proposed project site including potential FTHI habitat.

Conclusion: This alternative would not meet the cost or logistics criteria and is not a practicable alternative.

#### 2.5 On-Site Alternatives

The Corps evaluated four on-site alternatives to the proposed Project described in the Army Corps IP application that could possibly reduce impacts to WUS. Each of these alternatives was analyzed using practicability screening criteria to help identify the LEDPA. In addition to the proposed project and these four alternatives, this document also includes an analysis of the 900 MW facility initially proposed to help demonstrate the level of avoidance that has been incorporated into the revised project design beginning prior to the Corps involvement in the project though development of the 709MW alternative. Finally, this document also evaluates a no fill alternative. The on-site alternatives are described as follows:

Alternative #1 - Applicant's Proposed Project (750-MW Project). See Section 1.3 above for more information regarding the proposed action. The Applicant's original proposed project would permanently fill approximately 177 acres of jurisdictional WUS, would incur 5.2 acres of temporary impacts, and 13 acres would be indirectly affected on the project site through scour (See Map 3 in Attachment B). This alternative would permanently impact approximately 6,500 acres of FTHL habitat, which would be mitigated through in-kind purchase agreements. A small herd of five PBS was observed on the site in Marcy, 2009. This is considered an unusual occurrence because of no known lambing sites or water sites near the project site and no other PBS occurrences have been documented in the vicinity. Nonetheless, the USFWS has determined that the site may be used by PBS during migration or under extreme conditions such as drought and that the site supports approximately 250 acres of potential PBS foraging habitat (28% of the 881 acres of WUS). No direct take of federally listed species are expected to occur, but the USFWS is preparing a Biological Opinion (BO) for the potential adverse effects of the proposed project through loss of foraging habitat. Effects of this alternative would be complete removal of potential PBS foraging habitat through installation of the perimeter fence. The Applicant's Proposed Project could affect at least a 20% subset of approximately 337 known prehistoric and historical surface archaeological resources and may affect an unknown number of buried archaeological deposits, many of which may be determined historically significant. Effects to cultural resources were described in section 4.5 of the Final EIS would be mitigated under a Programmatic Agreement (PA).

Alternative #2 - Maximum Energy Generation Alternative (900-MW Project). The 900-MW Alternative was the original proposed Applicant Project. During the environmental review process conducted by the Applicant, the 750-MW Project later became the preferred Project to help avoid potential significant environmental impacts (specifically to cultural resources). The 900-MW Alternative was to be constructed on approximately 7,600 acres of land that extended east of the current project boundary to Dunaway Road. The 900-MW Alternative was proposed to be built in two phases. Phase I of the 900-MW Alternative would essentially

correspond with both the 300-MW Alternative described below (Alternative 4) and Phase I of the 750-MW Project (Alternative 1). Phase II of the 900-MW Alternative would expand Phase I of the 750-MW Project with an additional 600 MW of generating capacity. In total, approximately 36,000 SunCatchers would be required for the 900-MW Alternative.

The Corps worked with the Applicant to determine the extent of jurisdictional WUS within the proposed 750MW alternative (Alternative 1) as described later in section 3.1.1. During that evaluation process, the Corps also requested assisted in the interpretation of aerial photographs and hydrologic data to generate a map of potential WUS into the additional 1,100 acres necessary for the 900 MW Alternative (Map 4 in Appendix B.) Extrapolating from the impacts to WUS from the original site plan (750 MW), it is estimated that the 900 MW alternative would have more than 205 acres and likely up to 250 acres of permanent impacts due to the nature of the WUS in this area spreading into wide braided alluvial fans. In addition, the 900MW alternative would use the same waterline as the 750 MW alternative maintaining the same acres of temporary impacts (5.2 acres). This Alternative would impact an additional 1,100 acres of FTHL habitat, potentially 363 acres of PBS foraging (28% of the 1,298 acres of WUS) habitat would be unavailable due to the perimeter fence, and would impact an area with a high density of cultural resource sites The project was reduced to the 750 MW Proposed project to avoid these additional impacts, particularly the additional impacts to cultural resources.

Alternative #3 - Modified Project to Avoid the Highest Flow Resources. This alternative was designed to test the practicability of avoiding impacts to the highest flow streams on the site. It allows for the generation of approximately 709 MW while significantly reducing impacts to aquatic resources. This alternative avoids the entirety of washes I, H, K, and C and avoids all of washes E and G southwest of the transmission line corridor as well as providing a 200 foot wide flow corridor in washes E and G northeast of the transmission line corridor. The Corps has been working with the Applicant since the preparation of the SA/DEIS to maximize avoidance of to WUS. In order to accomplish the avoidance demonstrated in the alternative, the Applicant has redesigned the project substantially, including moving the Main Services Complex and narrowing roads. The following is a list of avoidance, redesign, or minimization measures taken to reduce impacts to WUS to the maximum extent practicable:

Primary Design Modifications in order to Maximize Avoidance and Minimization to WUS:

1. Reduced total generating capacity from 750 MW to 709 MW allowing for the complete avoidance of ephemeral main-stem streams H, I, K, and C, as well as complete avoidance of the majority of stream G and the upper half of stream E (Map 5 of Attachment B). This removed 1,163 SunCatchers from WUS and reduced permanent impacts from 177.4 acres to 38.2 acres. The streams chosen for avoidance were based primarily on flow characteristics, but also on the Corps qualitative evaluation of the stream condition in the field prior to the CRAM analysis described in section 3.1.2. The Corps qualitative evaluation was substantiated by the CRAM analysis since 4 of the 6 main stem stream avoided in this alternative are among the highest scoring. The only high scoring stream not avoided in this alternative is D and it is located in the approximate center of the project site flowing from south to north.

- SunCatchers were removed from 200 foot corridors in the northern sections of ephemeral main-stem streams E and G. This reduced the number of SunCatchers in WUS by 228. These corridors combined with the complete avoid of the streams south of the transmission corridor provide unobstructed hydrologic and sediment transport and FTHL with clear routes to travel across the proposed project area (Map 5 of Attachment B).
- Reduced the number of the east-west roads to minimize the number of roads in washes and the number of wash crossings.
- The waterline that extends to the SWWTF was shifted and co-located beneath a site arterial and maintenance roads to reduce temporary impacts to WUS to 0.0 acres.
- Reducing the width of SunCatcher maintenance roads from 15 feet to 10 feet which is the narrowest road width allowed by industry standards.
- 6. The removal of spur roads to individual SunCatchers from the maintenance road that runs down the middle of the two roads of SunCatchers (Figures 4 and 5). This increases the temporary disturbance for the construction of the SunCatchers by the use of a temporary 50-foot road that includes the 2-foot wide trench for the installation of an underground utility line and hydrogen pipeline, but decreases the permanent impacts to WUS substantially.

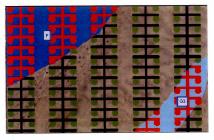


Figure 4. Orginal design for access roads to the SunCatchers that includes the 55 foot spur roads to each Sun Catcher.

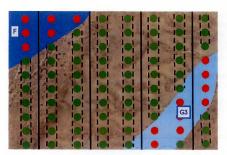


Figure 5. Current design for the SunCatchers and Maintenance roads. Dashed lines are utility trenches for the electrical and Hydrogen distribution lines.

- 7. Originally, sediment basins were proposed to retard water flow through the property and trap sediment. Hydrology and sediment modeling determined that the sediment basins would substantially change the pattern of sediment delivery for the ephemeral streambeds and result in a deficit of sediment transport downstream (Chang Consultants 2010a). The Applicant removed the sediment basins from the proposed project as a result of these findings which decreased the permanent impacts to WUS by 3.3 acres and reduced impacts to sediment transfer through the project area.
- 8. The Main Services Complex was moved north to move it out of a secondary wash complex. This reduced permanent impacts to WUS by 17.4 acres. In addition, it removed the two retention ponds from the wash and reduced the risk of pollutants entering the ephemeral wash system.
- 9. The main access road crosses Wash G and the crossing originally was planned to use culverts. Chang's initial report indicated that the culvert crossing would impede sediment and alter downstream sediment transfer (Chang 2010a). The crossing was changed to a precast concrete arches culvert system (like a bridge) that will not alter the downstream sediment transfer.

The Applicant proposes numerous other avoidance and minimization measures that are intended to reduce, ameliorate, and/or avoid potential adverse effects on the aquatic ecosystem and wildlife. These measures are outlined in the Proposed Conditions of Certification Sections of the Biological Resources and Soil and Water Resources portions of the SA/DEIS and individual Mitigation, Project Design Features, and Other Measures within sections 3.3 and 4.3 of the Final EIS.

The Alternative would result in permanent impacts to approximately 38.2 acres of jurisdictional WUS and would incur 10.8 acres of temporary impacts. This is a reduction of 138

acres (78 % reduction) of permanent impacts to WUS. This alternative would permanently impact approximately 6,000 acres of FTHL habitat, which would be mitigated through in-kind purchase agreements. Within the 709MW Alternative there is approximately 250 acres of potential PBS foraging habitat (28% of the 881 acres of WUS). No direct take of federally listed species are expected to occur. Effects of this alternative would be complete removal of potential PBS foraging habitat through installation of the perimeter fence.

This Alternative could affect at least a 20% subset of approximately 337 known prehistoric and historical surface archaeological resources and may affect an unknown number of buried archaeological deposits, many of which may be determined historically significant. Effects to cultural resources would be mitigated under a PA.

Alternative #4 - 300 MW Alternative. This alternative was designed to test the practicability of limiting the project to Phase 1 and would allow for the construction of a nominal 300 MW facility. This Alternative would reduce the disturbance area to 2,846 acres (40% of the proposed action). The Alternative would result in permanent impacts to approximately 27 acres of jurisdictional WUS and would incur 7.3 acres of temporary impacts. It would likely result in an incremental reduction in potential effects to FTHL habitat, and cultural resources by approximately 60%. Within the 300MW Alternative there is approximately 79 acres of potential PBS foraging habitat (28% of the 283 acres of WUS). No direct take of federally listed species are expected to occur. Effects of this alternative would be complete removal of potential PBS foraging habitat through installation of the perimeter fence. Effects to cultural resources would be mitigated under a PA.

Alternative #5 - Drainage Avoidance #1 Alternative. This alternative was designed to test the practicability of avoiding permanent impacts to the 10 primary ephemeral washes found within the proposed project area. Approximately 5,600 acres of the 6,500-acre site would be developed (86% of the proposed action). This alternative would reduce permanent impacts to jurisdictional WUS from 177 acres to approximately 38 acres and reduce energy production from 750 MW to 606 MW. Effects to FTHL habitat would be reduced incrementally proportion to the reduction in acres of impact. Impacts to PBS foraging habitat would be the same as with the 750MW and 709MW Alternatives, there is approximately 250 acres of potential (28% of the 881 acres of WUS). No direct take of federally listed species are expected to occur. Effects of this alternative would be complete removal of potential PBS foraging habitat through installation of the perimeter fence. Effects to cultural resources would be mitigated under a PA.

Alternative #6 - Drainage Avoidance #2 Alternative. This alternative was designed to test the practicability of eliminating development in the eastern and westernmost portions of the project site essentially shrinking the project footprint to the center of the property. Drainage Avoidance #2 Alternative would avoid the largest ephemeral drainage complexes and many more of the cultural resources on the eastern portion of the property. It would reduce the disturbance area to 3,590 acres (55% of the proposed action), would reduce permanent impacts to WUS from 177 acres to 36.7 acres, and would reduce energy production to 438 MW. The impacts to FIHL habitat and to FIHL populations would be decreased by approximately 45%. Impacts to PBS foraging habitat would be the same as with the 750MW

and 709MW Alternatives, there is approximately 250 acres of potential (28% of the 881 acres of WUS). No direct take of federally listed species are expected to occur. Effects of this alternative would be complete removal of potential PBS foraging habitat through installation of the perimeter fence. Effects to cultural resources would be incrementally reduced in proportion to the reduced acres of impacts and mitigated under a PA.

Alternative #7 - No Project/No Development Alternative. The No Project/No Development Alternative assumes that there are no project approvals in effect, and no future development of the project area would occur. This alternative would avoid the adverse effects associated with construction of the project and operation and would therefore preserve all WUS and FTHL habitat and PBS potential foraging habitat on-site. The project area would remain it its existing condition or would continue to degrade and be subject to further trash deposition, off-road vehicles, weed infestation from on-going disturbances, and other transient use. Given the dispersal of aquatic resources located on the site, it was determined that the No Project Alternative described in the SA/DEIS and Final EIS is equivalent to the no fill alternative as it would be impossible to construct a large scale solar project on the site without impacting some aquatic resources.

## 2.6 Practicability of On-site Alternatives

In considering the practicability of the on-site alternatives, alternative site configurations were evaluated for each alternative. Onsite alternatives #1 thru #4 were alternatives designed by the applicant's engineers, while alternatives #5 and #6 were drainage avoidance alternatives generated by the Corps. Table 4 below summarizes the results for the practicability analyses for each of the on-site alternatives. Sections 2.6.1-2.6.6 provide the detailed practicability analyses for each alternative.

Table 4. Practicability of onsite alternatives including cost and logistics criteria.

Practicability Criteria	Alt #1 Proposed Project	Alt #2 Max Gen	Alt #3 Highest flow Avoidance	Alt #4	Alt #5	Alt #6
			Cost Criteria			
Size of Project (MW)	750	900	709	300	606	438
Cost \$/kW	\$2,950	\$2,900	\$3,000	\$3,200	\$3.050	\$3,200
Difference in Construction Cost from Proposed Project		-\$45,000,000	+35,400,000	+75,000,000	+60,600,000	+109,500,000
Meets Cost Criteria	Yes	Yes	Yes	No	No	No
		Lo	gistics Criteria		area la colo	
Number of Std/Non- Std Generator Groups	450/50	600/0	474/215	204/74	405/216	286/108
Percentage of Non- Std Groups	11%	0%	45%	36%	53%	38%
Isolated SunCatcher Groups	No	No	No	No	Yes	No
Centrally located Main Services Complex	Yes	Yes	Yes	Yes	Yes	No
Meets Logistics Criteria	Yes	Yes	Yes	Yes	No	Yes
and the second		ln	npacts to WUS			
Permanent WUS Impacts (acres)	177	205	38.2	27	38	31.9

Practicability Criteria	Alt #1 Proposed Project	Alt #2 Max Gen	Alt #3 Highest flow Avoidance	Alt #4	Alt #5	Alt #6
Temporary WUS Impacts (acres)	5.2	5.2	14.0	7.3	12.5	10.4
Practicable Alternative?	Yes - Larger impacts to WUS make it unlikely to result in the LEDPA.	Yes -Larger impacts to WUS and cultural resources make it unlikely to result in the LEDPA.	Yes	No - Does not satisfy cost criteria to produce electric power at a price regulated utilities can pay.	No - Does not satisfy cost criteria to produce electric power at a price regulated utilities can pay and would require isolated SunCatcher groups and greater than 50% of non-standard Generator Group.	No - Does not satisfy cost criteria to produce electric power at a price regulated utilities can pay.

## 2.6.1 Alternative #1 - Applicant's Proposed Project

Overall Project Purpose: The proposed project would allow for the generation of 750 MW of utility grade electricity (Map 3 of Attachment B). The proposed project would meet approximately 84.1% of SDG&E's renewable energy requirements. This alternative satisfies the overall project purpose due to its capability of producing between 300MW and 750MW of alternative energy.

Cost: The proposed project would allow for the generation of 750 MW at a cost of approximately \$2,950 per kW. The estimated total construction cost for 750 MW is \$2,212,500,000. The construction costs for this alternative were used to negotiate the PPA with SDG&E and do not exceed the cost threshold determined by prices in the agreement. This alternative meets the cost criteria.

Logistics: The proposed project allows for the installation of 30,000 SunCatcher™ units that can efficiently be grouped into 360 SunCatcher™ groups, allowing for the efficient generation and transmission of electricity generated. It allows for the installation of perimeter, arterial and maintenance roads necessary to service each of the SunCatcher groups and to meet necessary safety and security requirements. Utilities can be installed to serve each of the units and the central facilities complex can be located in the center of the project site. This alternative meets the logistics criteria.

Technology: Existing Technology was determined by the Corps to have no bearing on the practicability analysis because all alternatives analyzed propose use of the same solar technology (e.g. Stirling Energy SunCatchers).

Environmental: This alternative would result in 177 acres of permanent impacts and 5.2 acres of temporary impacts to WUS (Table 5)

Table 5. Permanent and temporary impacts to waters of the U.S. associated with Alternative #1.

4 - 1° V.			ent (Acres)	Temporary Acres		
Impacts		Primary	Secondary	Primary	Secondary	
	Roads Main Access		0.5	0.0	0.0	
Roads			43.2	0.0	0.0	
Debris Basins		3.3	1.5	0.0	0.0	
SunCat	chers (2 ft er) <sup>1</sup>	0.3	0.1	0.0	0.0	
Main Se Comple		7.1	10.9	0.0	0.0	
Waterl	ine	0.0	0.0	5.2	0.0	
Electri Distrib		Included in maintenance road impa				
Total		121.2	56.2	5.2	0.0	

<sup>&</sup>lt;sup>1</sup> – Impacts for the SunCatcher pedestals were calculated at 8.86 x 10<sup>-5</sup> acres (4 square feet) per pedestal (4,528 pedestals total).

Conclusion: This alternative is practicable considering cost and logistics, and would meet the overall project purpose, but would have more impacts to environmental and cultural resources than the 709MW Alternative and therefore is not likely to result in the LEDPA.

## 2.6.2 Alternative #2 - Maximum Energy Generation Alternative

Overall Project Purpose: Alternative 2 would involve the construction of a facility capable of generating 900 MW of utility quality electricity (Map 4 of Attachment B). This would provide approximately 100% of SDG&E's renewable energy requirements and exceeds the overall project purpose of generating between 300 and 750MW.

Cost: This alternative would allow for the generation of 900 MW at a cost of less than \$2,900 per kW. The estimated total construction cost for 900 MW is \$2,610,000,000. The costs for this alternative are less than those used to negotiate the PPA with SDG&E and do not exceed the cost threshold determined by prices in that agreement. This alternative meets the cost criteria.

Logistics: This alternative allows for the installation of 36,000 SunCatcher units that can efficiently be grouped into 360 SunCatcher groups, allowing for the efficient generation and transmission of electricity generated. It allows for the installation of perimeter, arterial, and maintenance roads necessary to service each of the SunCatcher groups and to meet necessary safety and security requirements. Utilities can be installed to serve each of the units and the main facilities complex can be located in the center of the project site. This alternative meets the logistical criteria.

Technology: Existing Technology was determined by the Corps to have no bearing on the practicability analysis because all alternatives analyzed propose use of the same solar technology (e.g. Stirling Energy SunCatchers).

Environmental: This alternative would result in approximately 205 acres of permanent impacts and temporary impacts to 5.2 acres of WUS (Table 6).

Table 6. Permanent and temporary impacts to waters of the U.S. associated with Alternative #2.

	S. ST. ST. ST. ST. ST. ST. ST. ST. ST. S		ent (Acres) <sup>1</sup>	Tempo	rary Acres
Impacts		Primary	Secondary	Primary	Secondary
30 (18)	Roads Main Access		0.6	0.0	0.0
Roads			51	0.0	0.0
Debris Basins		3.9	1.8	0.0	0.0
SunCat diamet	tchers (2 ft ter) <sup>2</sup>	0.4	0.1	0.0	0.0
Main So Comple	ervices ex	7.1	10.9	0.0	0.0
Waterl	ine	0.0	0.0	5.2	0.0
Electri Distrib		Included in maintenance road impac			
Total		140.2	64.4	5.2	0.0

<sup>&</sup>lt;sup>1</sup> – Permanent impacts were extrapolated using the permanent impacts from Alternative #1 and the 900 MW footprints (7.600 acres).

Conclusion: This alternative would be practicable in terms of cost and logistic criteria and would meet the overall project purpose. Although practicable, this alternative would not result in a reduction of impacts to aquatic resources and therefore is not likely to result in the LEDPA.

# 2.6.3 Alternative #3 - Modified Project to Avoid the Highest Flow Resources

Overall Project Purpose: This alternative would allow for the generation of 709 MW of utility grade electricity (Map 5 of Attachment B). This represents a reduction of over 10% of renewable energy, but would meet the overall project purpose by generating between 300MW and 750MW.

Cost: This alternative would allow for the generation of 709 MW at a cost of approximately \$3,000 per kW considering the cost of constructing the common facilities and installing the Suncatchers. By increasing the cost per kW by \$50, the construction costs for this project would increase by \$35,400,000 as compared to the cost associated with the 750 MW proposed project. The estimated total construction cost for 709 MW is \$2,127,000,000. Although, the costs for this alternative are \$50/kW more than those used to negotiate the PPA with \$DG&E, TSNA has determined that it is practicable to absorb this cost increase and provide electricity at the prices in the agreement. Although this alternative would result in substantial additional costs, it meets the cost screening criteria.

<sup>&</sup>lt;sup>2</sup> – Impacts for the SunCatcher pedestals were calculated at 8.86 x 10<sup>-5</sup> acres (4 square feet) per pedestal.

Logistical: This alternative allows for the installation of approximately 28,360 SunCatcher™ units that can efficiently be grouped into 360 SunCatcher™ groups, allowing for the efficient generation and transmission of electricity generated. It allows for the installation of perimeter, arterial, and maintenance roads necessary to service each of the SunCatcher groups and to meet necessary safety and security requirements. Utilities can be installed to serve each of the units and the main facilities complex can be located in the center of the project site. This alternative meets the logistical criteria.

Technology: Existing Technology was determined by the Corps to have no bearing on the practicability analysis because all alternatives analyzed propose use of the same solar technology (e.g. Stirling Energy SunCatchers).

Environmental: This alternative would result in permanent impacts to 38.2 acres and temporary impacts to 14.0 acres of WUS (Table 7).

Table 7. Permanent and temporary impacts to waters of the U.S. associated with Alternative #3.

		Peri	manent	Tem	porary
Impacts		Primary	Secondary	Primary	Secondary
Roads	Arterial Roads	7.4	2.7	0.0	0.0
	Perimeter Roads	2.0	0.5	0.0	0.0
	Maintenance Roads	15.2	9.2	0.0	0.0
	Temporary Road	0.03	0.2	0.0	0.0
Waterli	ne	0.0	0.0	0.0	0.0
Main Se	rvices Complex	0.01	0.7	0.0	0.0
SunCate diamete	thers (2 ft er) <sup>1</sup>	0.2	0.1	0.0	0.0
Perime	ter Fence <sup>2</sup>	0.1	0.03	0.0	0.0
Electric Trench	al and Hydrogen es³	0.0	0.0	8.6	5.4
Total		24.9	13.3	8.6	5.4

 $<sup>^1-</sup>$  Impacts for the SunCatcher pedestals were calculated at 8.86 x 10  $^5$  acres (4 square feet) per pedestal (3,214 pedestals total).

<sup>2 —</sup> Temporary impacts associated with the electrical and hydrogen trenches necessary to each SunCatcher were calculated using a 12 inch wide trench for the hydrogen trench and a 24 inch wide trench for the electrical trench and 58 feet of trenching for each SunCatcher.

Conclusion: This alternative is practicable and has fewer impacts than the 900 and 750MW alternatives

## 2.6.4 Alternative #4 - 300 MW Alternative

Overall Project Purpose: This alternative would allow for the generation of 300 MW of utility grade electricity (Map 6 of Attachment B). This alternative would meet the overall project purpose by generating between 300MW and 750MW

Cost: This alternative would allow for the generation of 300 MW at a cost of approximately \$3,200 per kW. By increasing the cost per kW by \$250 over the proposed project, the construction cost of this alternative would increase by \$75,000,000, as compared to the cost building 300 MW with the costs associated with the 750 MW proposed project. The estimated total construction cost for 300 MW is \$906,000,000. Construction costs for this alternative are substantially higher than those used to negotiate the PPA with SDG&E and exceed the cost threshold determined by prices in that agreement. This alternative does not meet the cost criteria.

Logistical: This alternative allows for the installation of 12,000 SunCatcher units that can efficiently be grouped into 360 SunCatcher® groups, allowing for the efficient generation and transmission of electricity generated. It allows for the installation of perimeter, arterial and maintenance roads necessary to service each of the SunCatcher® groups and to meet necessary safety and security requirements. Utilities can be installed to serve each of the units, but the main facilities complex would be located at one end of the project site, not providing the most efficient location for common facilities. This alternative meets the logistical criteria.

Technology: Existing Technology was determined by the Corps to have no bearing on the practicability analysis because all alternatives analyzed propose use of the same solar technology (e.g. Stirling Energy SunCatchers).

Environmental: This alternative would result in permanent impact to 27 acres and temporary impacts to 7.3 acres of WUS (Table 8).

Table 8. Permanent and temporary impacts to waters of the U.S. associated with Alternative #4.

Impacts		Perman	ent (Acres)	Temporary (Acres)		
		Primary	Secondary	Primary	Secondary	
	Arterial	1.2	1.1	0.0	0.0	
Roads	Perimeter	0.1	0.0	0.0	0.0	
Maintenance		2.0	4.5	0.0	0.0	
Debris Basins		0.0	0.0	0.0	0.0	
Water	Line	0.0	0.0	4.4	0.2	
Main Se Comple		7.1	10.9	0.0	0.0	
SunCat diamet	chers (2 ft er) <sup>1</sup>	0.0	0.1	0.0	0.0	
Electrical and Hydrogen Trenches <sup>2</sup>		0.0	0.0	1.2	1.5	
Total	respirational disc	10.5	16.5	5.6	1.7	

 $<sup>^{1}</sup>$  – Impacts for the SunCatcher pedestals were calculated at 8.86 x  $10^{-5}$  acres (4 square feet) per pedestal (983 pedestals total).

Conclusion: The 300MW Alternative does not meet the cost criteria. Therefore it is not practicable.

#### 2.6.5 Alternative #5 - Drainage Avoidance #1 Alternative

Overall Project Purpose: This alternative would allow for the generation of up to 606 MW of utility grade electricity (Map 7 of Attachment B). This represents a reduction in 19% of the renewable energy, but meets the overall project purpose of generating between 300MW and 750MW. It should be noted that actual generation capacity of this alternative may be significantly less than described as this alternative was not based on an engineered design.

Cost: This alternative would allow for the generation of 606 MW at a cost of approximately \$3,050 per kW. By increasing the cost per kW by \$100 over the proposed project, the construction cost for this alternative would increase by \$60,600,000 as compared to building 606 MW at the costs for the 750 MW proposed project. The estimated total construction cost for 606 MW is \$1,848,300,000. Construction costs for this alternative are substantially higher than those used to negotiate the PPA with SDG&E and exceed the cost threshold determined by prices in that agreement. This alternative does not meet the cost criteria.

Logistics: This alternative allows for the installation of 25,200 SunCatcher™ units grouped into 360 SunCatcher™ groups. This alternative was developed as an alternative to

<sup>&</sup>lt;sup>2</sup> — Temporary impacts associated with the electrical and hydrogen trenches necessary to each SunCatcher were calculated using a 5 inch wide trench for the hydrogen trench and a 24 inch wide trench for the electrical trench and 58 feet of trenching for each SunCatcher.

avoid/minimize impacts to WUS and was not developed in consideration of the applicant's engineering logistical constraints. This alternative would result in multiple areas of isolated SunCatcher groups. Several examples are between Wash K and Wash K; the northern forked portion of Wash D; southern portions of Wash G; areas north of Wash E and other smaller areas where SunCatcher groups would be isolated. The Applicant would not construct SunCatcher groups in these isolated areas (refer to Logistics Criteria above). As such, this alternative would generate significantly less than the 607 MW estimated when this alternative was developed. Further, this alternative would require more than 50% of the generation groups to be non-standard configurations. This alternative does not meet the logistical criteria.

Technology: Existing Technology was determined by the Corps to have no bearing on the practicability analysis because all alternatives analyzed propose use of the same solar technology (e.g. Stirling Energy SunCatchers).

Environmental: This alternative would result in 38 acres of permanent impacts and 12.5 temporary impacts to WUS (Table 9).

Table 9. Permanent and temporary impacts to waters of the U.S. associated with Alternative #5.

Impacts		Perman	ent (Acres)	Tempor	ary (Acres)
		Primary	Secondary	Primary	Secondary
201063	Arterial		2.8	0.0	0.0
Roads	Perimeter	1.7	0.3	0.0	0.0
	Maintenance	0.0	9.0	0.0	0.0
Debris Basins		0.0	0.0	0.0	0.0
SunCat	chers (2 ft ter) <sup>1</sup>	0.0	0.1	0.0	0.0
Water	Line	0.0	0.0	4.4	0.2
Main S Comple	ervices ex	7.1	10.9	0.0	0.0
Electric Hydrog	al and en Trenches <sup>2</sup>	0.0	0.0	0.0	7.9
Total		14.9	23.1	4.4	8.1

<sup>&</sup>lt;sup>1</sup> – Impacts for the SunCatcher pedestals were calculated at 8.86 x 10<sup>-5</sup> acres (4 square feet) per pedestal (1,218 pedestals total).

Conclusion: This alternative is not practicable as it does not meet cost or logistical screening criteria.

<sup>&</sup>lt;sup>2</sup>—Temporary impacts associated with the electrical and hydrogen trenches necessary to each SunCatcher were calculated using a 6 inch wide trench for the hydrogen trench and a 24 inch wide trench for the electrical trench and 58 feet of trenching for each SunCatcher.

### 2.6.6 Alternative #6 - Drainage Avoidance #2 Alternative

Overall Project Purpose: This alternative would allow for the generation of 438 MW of utility grade electricity (Map 6 of Attachment B). This represents a reduction in 42% of the renewable energy available to SDGB, but meets with the overall project purpose of generating between 300MW and 750MW. While not an engineered design, the generation capacity of this alternative is considered by the applicant to be a reasonable estimate.

Cost: This alternative would allow for the generation of 438 MW at a cost of approximately \$3,200 per kW. By increasing the cost per kW by \$250 over the proposed project, the construction cost for this alternative would increase by \$109,500,000 as compared to the cost of building 438 MW with the costs associated with the 750 MW proposed project. The estimated total construction cost for 438 MW is \$1,401,600,000. Construction costs for this alternative are substantially higher than those used to negotiate the PPA with \$DG&E and exceed the cost threshold determined by prices in that agreement. This alternative does not meet the cost criteria.

Logistics: This alternative allows for the installation of 15,960 SunCatcher™ units grouped into 266 SunCatcher™ groups. This alternative was developed as an alternative to avoid/minimize impacts to WUS and was not developed in consideration of the applicant's engineering logistical constraints. While an overall smaller facility, it allows for the efficient generation and transmission of electricity generated. It allows for the installation of perimeter, arterial and maintenance roads necessary to service each of the SunCatcher™ groups and to meet necessary safety and security requirements. Utilities can be installed to serve each of the units, but the main facilities complex would be located at one end of the project site, not providing the most efficient location for common facilities. This alternative meets the logistics criteria.

Technology: Existing Technology was determined by the Corps to have no bearing on the practicability analysis because all alternatives analyzed propose use of the same solar technology (e.g. Stirling Energy SunCatchers).

Environmental: This alternative would result in 31.9 acres of permanent impacts and 10.4 acres of temporary impacts to WUS (Table 10).

Table 10. Permanent and temporary impacts to waters of the U.S. associated with Alternative #6.

M.33 79	enne oriental	Perman	ent (Acres)	Tempor	ary (Acres)
Impacts		Primary	Secondary	Primary	Secondary
Arterial		2.7	1.8	0.0	0.0
Roads	Perimeter	1.1	0.0	0.0	0.0
Maintenance	Maintenance	6.8	6.1	0.0	0.0
Debris Basins		0.0	0.0	0.0	0.0
SunCat	chers (2 ft er) <sup>1</sup>	0.1	0.1	0.0	0.0
Water	Line	0.0	0.0	4.4	0.2
Main S Comple	ervices ex	7.1	10.9	0.0	0.0
Electric Hydrog	al and en Trenches <sup>2</sup>	0.0	0.0	3.7	2.1
Total	nothing usens	17.8	14.1	8.1	2.3

 $<sup>^{1}</sup>$  – Impacts for the SunCatcher pedestals were calculated at  $8.86 \times 10^{5}$  acres (4 square feet) per pedestal (1,550 pedestals total).

Conclusion: This alternative is not practicable as it does not meet the cost screen criteria.

## 2.7 Summary of Environmental Impacts

This section provides a summary of environmental impacts for the three onsite alternatives that meet the practicability criteria (Alternatives 1, 2, and 3 [See Table 4]). Alternatives 1 and 2 would have greater impacts to WUS, two federally listed species (FTHL and PBS), and Alternative 2 would have greater impacts to sensitive cultural resources. These two alternatives were eliminated from further analysis and only Alternative 3 is continued through the detailed impacts analysis (sections 3, 4, and 5).

## 2.7.1 Alternative 1 Environmental Impacts Summary

The Alternative 1 meets the practicability criteria as stated above; however, it would have a larger environmental footprint when compared to the Alternative 3. The 750 MW Alternative would permanently impact approximately 177 acres of WUS compared to 38.2 for the 709 MW alternative (Table 4). No drainages would be avoided as in the Alternative 3 which would effectively eliminate any pathways for FTHL and other wildlife to traverse the project area. In addition, the additional impacts to WUS would further reduce desert wash habitat available for FTHL and general wildlife use. Due to the increased environmental impacts to WUS, FTHL, PBS, and general wildlife habitat, Alternative 1 is eliminated from further analysis.

<sup>&</sup>lt;sup>2</sup> — Temporary impacts associated with the electrical and hydrogen trenches necessary to each SunCatcher were calculated using a 6 inch wide trench for the hydrogen trench and a 24 inch wide trench for the electrical trench and 58 feet of trenching for each SunCatcher.

### 2,7.2 Alternative 2 Environmental Impacts Summary

The Alternative 2 meets the practicability criteria as stated above; however, it would have a larger environmental footprint when compared to Alternative 3. In addition, the area between the eastern boundary of the proposed project area and Dunaway Road is an important cultural resource area that would be impacted with the construction of Alternative 2. A formal delineation has not been completed for the additional area included in the 900 MW Alternative, but it is estimated that the Alternative would permanently impact up to 205 acres of WUS which is five times greater than the Alternative 3. Similar impacts are expected, but the scale of the impacts would be increased for the Alternative 2. No drainages would be avoided as in the Alternative 3 which would inhibit FTHL and other wildlife from traversing the project area. In addition, a greater amount of potential forage for the PBS would be removed.

During the Applicant's initial cultural resources analysis, field surveys, and mapping exercises, a large number of cultural resources, including lithic surface finds, were concentrated between the current eastern boundary and Dunaway Road (CEC 2010). The 900 MW Alternative would impact these sensitive cultural sites and increase the overall cultural impacts compared to the other Alternatives. Due to the increased cultural resources impacts and increased impacts to WUS, the Alternative 2 is eliminated from further analysis.

### 2.7.3 Alternative 3 Environmental Impacts Summary

Alternative 3 incorporates several avoidance and mitigation measures as outlined in Section 2.5 to minimize impacts to WUS and associated wildlife. This alternative would reduce impacts to WUS by 78% (38.2 acres of permanent impact vs. 177 acres for Alternative 1). It would also eliminate the installation of SunCatchers in washes H, I, K, C, and the southern sections of washes E and G. This would allow for FTHL movement through the project area from the Yuha Desert FTHL Management Area to the south to the West Mesa FTHL Management Area to the north. In addition, the Alternative includes 200 foot corridors in the northern sections of Washes E and G to provide FTHL movement corridors on the eastern portion of the project area (Map 5 in Attachment B). Compared with Alternative 1, Alternative 3 would clear approximately 35 less acres of vegetation providing more forage to PBS in the area and protecting a greater proportion of the desert wash habitat within the project area. Alternative 3 would greatly reduce impacts to WUS, FTHL habitat, and PBS foraging habitat within the project area and Sections 3.0 and 4.0 describe the environmental impacts of this alternative with greater detail. Proposed mitigation for the unavoidable 38.2 acres is described in Section 5.0.

## 3.0 Existing Conditions

This section describes the baseline conditions on the proposed project area. It includes a description of the ephemeral streambeds located within the project area including the physical, chemical, and biological characteristics. Portions of the descriptions were taken or updated from the SA/DEIS. This information will continue to be updated as species information or analyses are completed by the applicant and/or the responsible regulatory agencies.

## 3.1 Location and General Description

The project site lies within the Imperial Subregion of the Colorado River Regional Water Quality Control Board (RWQCB). There are no perennial or intermittent streams on the project site. The closest perennial water feature is the West Side Main Canal, located east of the project site by approximately 3 miles. The closest natural perennial drainage to the project site is the New River, created in the early 1900's when the Colorado River overflowed a dike, and with the Alamo River further east, flowed through the Imperial Valley to form the Salton Sea. Both the New and Alamo Rivers flow from Mexico north to the Salton Sea collecting discharge from Mexican factories, Mexican sewage, and inflow from large and small irrigation canals that feed and drain the agriculture in the Imperial Valley. Subsequently, the New River is highly polluted as described in detail later in this section.

The ephemeral streams on the project site have been categorized as "primary" or "secondary" for the purposes of developing and analyzing project alternatives. The categorization is further described in the next section, but generally "primary" streams are main-stem streams originating south of the project site with a minimum Strahler order of 3 or higher and tributary streams that originate on-site with a Strahler order of 1 or 2 (Strahler 1957). Ten (10) primary ephemeral streams traverse the proposed IVSP site from south to north in the western portion of the site and from south to northeast in the eastern half of the site. Headwaters for these streams originate from gently sloping upland areas south and west of the property in the Yuma Desert. Culverts under the I-8 Freeway allow flows from primary streams south of the freeway to flow across and into the site. Some large secondary streams (i.e., C-5) that have large watersheds south of the interstate have been effectively intercepted by the interstate and as a consequence had their flows diverted by Caltrans to the culverts feeding the primary streams (Map 1 in Attachment B).

Ephemeral streams in the project area provide beneficial functions and services typical of high quality, low disturbance desert scrub systems. Riverine functions are generally categorized into hydrologic, physical, and biologic. Functions performed include, but are not limited to, groundwater recharge, flood peak attenuation, floodwater storage, sediment trapping and transport, nutrient trapping, and maintenance of wildlife corridors and habitat. These functions could be impaired to varying degrees by construction and operation of the proposed IVSP.

## 3.1.1 Jurisdictional Determination

Jurisdictional WUS were defined using a combination of the preliminary jurisdictional delineation report and map prepared by URS (2009), limited field verification by the Corps,

CDFG, CEC, and BLM on November 10, 2009, review of high resolution aerial photography, hydrological information provided in the October 2009 Revision 1 version of the "Hydrologic Assessment Report IVSP Site" by RMT (2009), and personal communication with Imperial Irrigation District (IID) (January 7 and August 17, 2009). As stated previously, the streams on the site were categorized as "primary" or "secondary" streams (essentially equivalent to main-stem and tributary streams) based upon their size, the acreage of the watershed upstream of the drainage, and whether the drainage originates on-site. A total of 637 acres of primary streams and 244 acres of secondary streams were mapped (Table 11) and shown in Map 1 in Attachment B.

Table 11. Corps Jurisdictional Waters of the U.S.

Drainage ID	Area (acres)	Length (feet)	Drainage ID	Area (acres)	Length (feet)
	24	7,106.5	E	199	26,150.5
J	11	4,159.5	E1	22	12,954.5
К	37	7.079.5	E2	2	2,146.7
K1	5	2,930.0	E3	3	2,549.1
K2	3	1,095.8	E4	2	1,905.7
Α	25	7,209.2	E5	8	5,479.7
В	10	7,780.2	F	104	10,249.5
С	40	9,477.9	F1	12	7,827.6
C1	12	5,666.3	F2	5	2,645.1
C2	10	8,038.9	F3	7	3,697.7
C3	13	7,922.8	G	115	20,849.3
C4	7	5,222.5	G1	18	6,564.5
C5	2	1,279.0	G2	9	4,382.3
D	75	17,869.5	G3	10	4,163.6
D1	D1 27		Н	7	959.8
D2	29	14,883.6	SI	22	6,371.9
D3	6	3,051.7	octo make		-

Total Drainage Length: 240,826 feet Total Drainage Acreage: 881 acres

Most of the primary streams on the project area are compound ephemeral channels. Compound ephemeral channels (Lichvar et al. 2009; Lichvar and McColley 2008) are characterized by a mosaic of terraces within a wide, active floodplain by a single, low-flow meandering channel inset into a wider braided channel network and mosaic of terraces (Graf 1988a). These channels are highly susceptible to widening and avulsions (channel relocation)

during moderate to high discharges, reestablishing a low-flow channel during subsequent low flows (Lichyar et al. 2009; Lichyar and McColley 2008).

A high density of closely spaced braided channels with high width-to-depth ratio and low sinuosity generally characterize the larger streams on the study site. High width-to-depth ratios, braided channels and low sinuosity are often the result of high sediment concentrations and coarse grain sizes (Bull and Kirkby 2002).

Some of the secondary streams on the project site are discontinuous ephemeral streams (Lichvar et al. 2009; Lichvar and McColley 2008), characterized by alternating erosional and depositional reaches. They are constantly in flux, as headcuts (knick points) originating at the downstream end of the sheet flood zone migrate upstream, causing dramatic temporal and spatial changes in channel morphology for any given location. Headwater streams on the site are characterized by some gullying and "badland" development. Most of the channels on the project site appear to have deep sediments composed of sands and gravels, with widely scattered vegetation growing within the channel and its floodplain.

#### 3.1.2 Condition of Ephemeral Streams

Southern California Coastal Water Research Project (SCCWRP) was contracted by TSNA at the recommendation of the Corps in order to evaluate the baseline condition of the desert streams on the project site utilizing the California Rapid Assessment Method (CRAM; SCCWRP, May 2010, Attachment D). The State and Federal agencies that comprise the California Wetlands Monitoring Workgroup (CWMW)<sup>2</sup> are promoting the use of rapid assessment methods (RAMs) as a core tool to evaluate aquatic resource condition. Currently, CRAM is the most widely used wetland rapid assessment in the State (www.cramwetlands.org). CRAM is intended to provide a rapid and repeatable assessment method that can be used routinely for wetland monitoring and assessment throughout the State of California. It provides consistent and comparable assessments of wetland condition for all wetlands and regions in California, yet accommodates special characteristics of different regions and types of wetlands. The CRAM typology currently recognizes six major wetland types, four of which have subtypes (Attachment D, Table 1). For the purposes of CRAM, condition is defined as the state of a wetland assessment area's physical and biological structure, the hydrology, and its buffer and landscape context relative to the best achievable states for the same type of wetland. Condition is evaluated based on observations made at the time of the assessment, the results of which can be used to infer the ability to provide various functions, services, values and beneficial uses to which a wetland is most suited (Collins et al. 2007), although these are not measured directly by CRAM. CRAM also identifies key anthropogenic stressors that may be affecting wetland condition.

In April 2008, the Corps, together with the EPA issued new national regulations, also known as the "Mitigation Rule," governing compensatory mitigation for activities authorized by permits issued by the Department of the Army (33 CFR Parts 325 and 332 [40 CFR Part 230]). The

<sup>&</sup>lt;sup>2</sup> The CWMW is a subcommittee of the California Water Quality Monitoring Council (Senate Bill 1070; Kehoe, 2006).

Corps LA District is in the process of updating the Mitigation and Monitoring Guidelines (Guidelines) to comply with the Mitigation Rule. The Mitigation Rule emphasizes the watershed approach and functional assessment methodology in evaluating project impacts and mitigation strategies. The use of CRAM in the context of the IVSP is used to first understand the baseline condition of the desert streams on the project site described in this section, estimate direct impacts and indirect impacts post-project described in section 4.3.1, and evaluate the adequacy of the proposed mitigation in section 5.0. In addition, this CRAM analysis is the first phase of a long-term research effort to refine, modify, and validate the Riverine CRAM for application to ephemeral streams in desert regions of California.

A total of 84 stream sites or Assessment Areas (AA) within the study site was assessed with CRAM (Appendix 4; Appendix 5a-b of the CRAM report [Attachment D]). None of the sites contained flowing surface water at the time of the CRAM assessment. All sites were classified as unconfined riverine systems (i.e., the width of the valley across which the system can migrate without encountering a hillside, terrace, or other feature that is likely to prevent further migration is at least twice the average bankfull width of the channel).

Overall CRAM index scores for these sites ranged from 53 to 80 (SCCWRP; Attachment D). AA 154 (C-44) received the highest overall index score and AA 356 (E-105), 269 (E-86), and 124 (B-35) were the three lowest scoring sites in the study area (Appendix 1 of the CRAM Report). Based on the known precision for overall index scores, AA scores that differ by 11 CRAM points or greater should be considered to represent differences in overall condition. For example, AA 154 (C-44), with an Overall Index Score of 80, can be interpreted as having higher ecological condition than AA 103 (A-30), which received a score of 67. However, AA 53 (G-19) and AA 57 (G-21), which received overall index scores of 79 and 72, respectively, do not represent significant differences in overall condition. A similar interpretation can be made for Attribute scores. Two scores for the same Attribute that differ by less than 5 CRAM points should not be regarded as representing differences in condition. Table 12 lists the distribution of metric and submetric scores (A-D) for all sites combined.

Table 12. Summary statistics of CRAM scores from the study site.

CRAM Index and Attributes	Mean	SE	SD	Median	Maximum	Minimum
Overall Index Score	68	1	6	69	80	53
Landscape Context	95	1	9	100	100	48
Hydrology	91	1	5	92	100	67
Physical Structure	41	1	13	50	75	25
Biotic Structure	46	1	9	44	75	31

It was noted at the beginning of the CRAM analysis that the current CRAM Riverine module would have limited applicability to the arid, ephemeral streams found on the project site due to the lack of species rich plant communities with vertical and horizontal structure complexity. The CRAM Riverine module was originally designed for the coastal Riverine systems that typically have greater plant diversity and cover and greater ecological

complexity. The results of the CRAM analysis indicate that the CRAM Riverine module can be applied to arid, ephemeral streams but some of the metrics will need to be recalibrated. The Landscape and Buffer Attribute appeared adequate as currently constructed while the Hydrology Attribute performed reasonably well, but some of the current metrics will need to be revised. The Biological and Physical Attributes were problematic when applied to the ephemeral streams on site due to the lack of physical and biological complexity. When compared to CRAM scores for perennial, coastal streams, scores for the project area were consistently lower for the Physical and Biological Attributes since these attributes of the CRAM Riverine module were designed to detect complexity within a system (Collins et al).

No dramatic spatial trends in drainage condition scores were evident on the study site (Table 13 and Appendix 6 of the CRAM report [Attachment D]). Some assessments areas located near the perimeter of the study site tended to score lower than sites located near its center. These sites scored lower because of their proximity to 1-8 to the south, and Evan Hewes Highway, the raised railroad bed, and the Plaster City industrial Complex to the north. These structures affected the Buffer and Landscape Connectivity Attribute; there were greater infestations of noxious weeds along the perimeter of the site, and there were signs of abnormal aggradations (near the raised railroad bed) and degradation (near where the culverts discharged under 1-8).

No primary drainage differs from another by at least 11 points, so no differences in overall score can be assessed. For individual attributes, six CRAM points denote a difference in the condition of that attribute. The CRAM scores show some significant fluctuations for Physical and Biotic Structure. Primary streams A, F, B, and I had the lowest scores for Physical Structure and primary streams C, G, and H had the highest Physical Structure scores. Likewise, differences were observed in the biotic structure with streams B, E, and K having the lowest scores and D, F, and H having the highest scores (Table 13).

Table 13. CRAM scores for each primary drainage.

Primary Streams	Number of Stream Sites	Overall Index Score	Landscape Context	Hydrology	Physical Structure	Biotic Structure
Α	3	64.0	90.4	91.7	25.0	49.1
В	5	64.0	94.8	88.3	35.0	37.8
С	4	71.6	98.3	87.5	50.0	50.7
D	4	72.7	100.0	93.8	43.8	53.5
E	6	64.0	88.0	88.9	37.5	41.7
F	2	68.1	100.0	91.7	25.0	55.6
G	9	70.4	93.3	89.8	48.6	49.7
Н	1	75.2	84.0	91.7	50.0	75.0
T	2	63.8	83.1	87.5	37.5	47.2
K	4	68.3	96.3	91.7	40.6	44.4

Similar to the primary streams, none of the combined secondary streams had overall scores that differed by greater than 10 CRAM points. As with the primary streams, there were some fluctuations with the Physical Structure and Biotic Structure with scores ranging from 33 to 50 for Physical Structure and 39 to 56 for Biotic Structure (Table 14).

Table 14. CRAM scores for the combined secondary streams.

Secondary Streams	Number of Stream Sites	Overall Index Score	Landscape Context	Hydrology	Physical Structure	Biotic Structure
С	8	67.87	95.49	90.00	40.42	45.56
D	10	70.82	99.71	94.17	44.38	45.05
E	8	72.61	97.66	91.67	50.00	51.11
F	5	67.59	100.00	92.59	33.33	44.44
G	3	66.46	97.77	91.67	37.50	38.89
J	1	62.91	80.80	91.67	37.50	41.67
К	1	69.44	100.00	75.00	50.00	52.78
S	1	74.31	100.00	91.67	50.00	55.56

### 3.1.2.1 Buffer and Landscape Context

Because this attribute of CRAM addresses general landscape aspects of the riparian vegetation and buffer of a site, the metrics as scored with the Riverine Module are generally applicable to sites within the study area. Although the existing riparian vegetation on the study site may differ in complexity, structure, and species composition from more mesic riparian systems, the connectivity of the riparian corridor and buffer of arid, ephemeral streams still provide important structural habitat for a variety of wildlife species, play an important role in the dispersal of both animals and plants, and also shade and stabilize fluvial environments, providing habitat for aquatic organisms (Naiman et al. 1993, Patten 1998).

For riverine CRAM, this attribute is scored with two metrics: (1) the continuity of the riparian corridor over a prescribed distance upstream and downstream of the assessment area, and (2) the amount, size, and condition of the buffer on both sides of the assessment area. Final condition scores for the Landscape and Buffer Context attribute ranged from 48-100 (µ= 95, o= 9; Table 12). Overall, this was the highest scoring CRAM attribute, with 67% of sites assessed receiving a score of 100 (the highest obtainable for this attribute). These sites were located primarily in the center of the project area where there is little development. The remaining 33 percent of sites were located on the perimeter of the site where I-8 to the south, and Evan Hewes Highway, the raised railroad bed, and the Plaster City industrial complex to the north, interrupted the landscape connectivity metric and buffer which lowered the scores.

## 3.1.2.2 Hydrology

For riverine CRAM, this attribute is scored with three metrics: (1) Water Source (direct fresh water sources to the channel during the dry season), (2) Channel Stability (the degree of channel aggradation or degradation), and (3) Hydrologic Connectivity (assessed based on the degree of channel entrenchment, calculated as the flood-prone width divided by the bank full width; Leopold et al. 1964, Rosgen 1996, Montgomery and MacDonald 2002). These metrics are discussed in detail in the attached CRAM report (Attachment 3). Final scores for the Hydrology attribute ranged from 67-100 (µ= 91, o= 5; Table 12). Overall, this CRAM attribute scored relatively high, with 86% of sites assessed receiving a final score of 92 or greater. Metrics of the Hydrology attribute in CRAM assess the sources, quantities, and movements of water, plus the quantities, transport, and fates of water-borne materials, particularly sediment as bed load and suspended load (Collins et al. 2008).

Overall, channel stability within the project area can be characterized as generally being in equilibrium with minor signs of aggradation which is expected for normally functioning arid, ephemeral streams. Signs of incision/downcutting were observed just downstream of where culverts discharged under I-8. The culverts focused flow from the upstream side of I-8 resulting in greater, narrower flows downstream of the culverts until the energy dissipated. Signs of excess aggradation were observed west of Plaster City where streams were diverted by the raised railroad bed to an underpass. Sediment was dropped out of the water column where the streams were diverted and flow was impeded.

Hydrologic Connectivity is assessed based on the degree of channel entrenchment, or the inability of flows in a channel to exceed the channel banks. Where an entrenchment ratio was measured, (93%) scored an "A(12)" for this metric, indicating that channels are not entrenched (mean entrenchment ratio for sites was 6.6 m). Although most sites assessed in the study area scored high for this metric (i.e., channels were generally not entrenched), the conceptual model and field techniques used to assess this metric in the field under the current CRAM Riverine Module will require reevaluation for aridland streams.

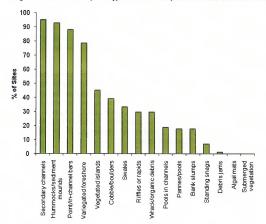
## 3.1.2.3 Physical Structure

The metrics used to score the Physical Structure Attribute of CRAM (physical patch types and topographic complexity) generally scored very low for the ephemeral streams assessed on the study site. Overall, this attribute did not apply well as constructed to the arid, ephemeral streams found on the project site. For CRAM, this attribute is scored with two metrics: (1) Patch Richness (the number of different obvious types of physical surfaces or features that may provide habitat for aquatic, wetland, or riparian species) and (2) Topographic Complexity (the spatial arrangement and interspersion of patch types). A detailed discussion of the two metrics is provided in the CRAM report (Attachment D). Final scores for the Physical Structure attribute ranged from 25-75 ( $\mu$ = 41,  $\sigma$ = 13; Table 12). Overall, this was the lowest scoring CRAM attribute, with 30% of sites assessed receiving a final score of 25 (the lowest possible for this metric).

For the physical patch type richness metric, most sites scored low due to the few patch types observed in the field. This is somewhat misleading because some of the patch types listed in the current Riverine module would not occur within an arid system such as algae, submerged

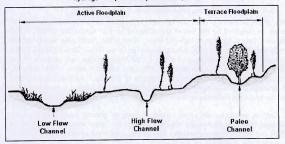
vegetation. Figure 6 shows the patch types that occurred within the project area. The first four patch types were found in over 75% of the stream sites while the remaining patch types were observed in less than 45% of the stream sites. There was no discernible trend for which sites scored higher than others.





To receive a high for the Topographic Complexity CRAM metric, the presence of two elevational changes (i.e., "benches" or breaks in channel slope) is required. In perennial streams, benching is facilitated by variations in flow and sediment regimes. Because arid land streams experience extreme and rapid variations in flood regime, the formation of benches is not a process that is expected to occur. Revised cross-section diagrams for arid stream systems would assist in interpretation of the topographic complexity metric, and potentially generate more variable scores for this metric. For example, in Figure 7, these cross-section diagrams could depict representations of in-channel features (e.g., low flow channel, active floodplain, and adjacent terraces) rather than elevation changes associated exclusively with the edge of the assessment area as was seen within the project area.

Figure 7. Typical arid, ephemeral/intermittent stream cross section and its associated hydrogeomorphic floodplain units (Lichvar et al. 2009).



## 3.1.3.4 Biological Structure

The metrics used to score the Biological Structure Attribute of CRAM (physical patch types and topographic complexity) generally scored very low for the ephemeral streams assessed on the study site. Overall, this attribute did not apply well as constructed to the arid, ephemeral streams found on the project site because the CRAM Riverine module uses complexity of plant communities and their position within the landscape to score this attribute. The arid, ephemeral streams of the project area are simple systems with few plant species, low plant cover, and low complexity across the landscape.

Metrics comprising this attribute focus on aspects of the vascular vegetation that contributes to a wetland's material structure and architecture. It is scored with three metrics: (1) Plant Community (number of vegetation layers, dominant plant species richness, and the number of invasive co-dominant species), (2) Horizontal Interspersion and Zonation (the number of distinct plant zones and the amount of edge between them), and (3) Vertical Biotic Structure (the degree of overlap among plant layers) and are discussed in greater detail in the CRAM Report (Attachment D). Final condition scores for the Biotic Structure attribute ranged from 53-80 (µ= 46, σ= 9; Table 12). Overall, this was the second lowest scoring CRAM attribute, with 73% of sites assessed receiving a final score of 47 or less.

In general, the sites near the northern perimeter of the site scored lower for the Plant Community Metric due to an increased presence of non-native species that decreased the scores for the metric. No sites scored high for the Horizontal Interspersion and Zonation and Vertical Biotic Structure metrics due to the simplistic nature of the plant communities that contain little to no horizontal and vertical overlap of plant communities.

## 3.2 Physical and Chemical Characteristics

### 3.2.1 Physical Substrate Determinations

Soil map units on the proposed project site primarily correspond to the Rositas, Carrizo, and Orita soil series, as classified by the United States Department of Agriculture (USDA) in Soil Survey of Imperial County California Imperial Valley Area (USDA, Soil Conservation Service [SCS] 1981) and Web Soil Survey (USDA, Natural Resources Conservation Service [NRCS] 2010). Soil map units in the eastern 300 acres of Phase II, the laydown area, and portions of the proposed water line correspond to the Meloland, Vint, and Indio soil series or the Imperial, Glenbar, and Gilman soil series. A small area, consisting of soil map units that correspond to the Badland miscellaneous land type and Beeline and Rillito soil series, occurs along the alignment for the proposed transmission line.

The Rositas, Carrizo, and Orita soil series consist of sands to gravelly loams that typically formed on alluvial fans, floodplains and alluvial basin floors. These soils are extremely to highly erodible, and exhibit high permeability and potential for wind erosion. Erosion factors are used to predict the erodability of a soil and its tolerance to erosion related to specific land uses and treatments. The soil erosion factor (K) is a measure of the susceptibility of the soil to erosion by water. Soils having the highest K values are the most erodible, with values ranging from 0.10 to 0.64. To estimate the annual soil loss per acre, the K value is modified by site-specific and/or regional parameters that include vegetative cover, grade and length of slope, management practices, and climate. The K value is relatively low for these soils at 0.20, which generally indicates a low potential for erosion-related annual soil loss per acre. However, since K also factors in climate as a modifier and total precipitation is very low in the region, a low K value does not necessarily indicate that these soils are resistant to erosion during precipitation events.

The Meloland, Vint, and Indio soil series consist of sands, sandy loams, or sitly loams that formed in recent mixed alluvium on floodplains, and alluvial basin floors. These soils are highly erodible to erodible, and exhibit moderate permeability and potential for wind erosion. The K value is generally moderate to high for these soils (-0.40, but up to 0.55), which suggests these soils have a higher potential for erosion-related annual soil loss per acre than the above soil series.

The Imperial, Glenbar, and Gilman soil series are included among the highly productive farmland soils located in the agricultural area of Imperial County. These soils are erodible to moderately erodible, and exhibit low permeability and potential for wind erosion. The K value is moderate for these soils (-0.40), indicating these soils have a moderate potential for erosion-related annual soil loss per acre.

The Badland miscellaneous land type consists of barren land on unconsolidated, stratified alluvium, and generally includes clays to gravelly sands in steep to very steep barren lands that are dissected by streams. This land type is extremely erodible, with surface runoff that is rapid or very rapid and the hazard of erosion is high. However, the K value is low for this miscellaneous land type at 0.10, which implies a low potential for erosion-related annual soil loss per acre. As previously discussed, the K value factors in climate as a modifier and total

precipitation is very low in the region; therefore, a low K value does not always indicate soil resistance to erosion during flood events.

The Beeline soil series consists of shallow and very shallow, well-drained sandy loams that formed in mixed alluvium, and typically occur on fan terraces and hill slopes. Beeline soils are well-drained with medium to rapid runoff and moderately rapid permeability. The Rillito soil series consists of very deep, somewhat excessively drained sandy loams that formed in mixed alluvium that are found on fan terraces or stream terraces. Rillito soils are somewhat excessively drained, and exhibit slow or medium runoff and moderate permeability.

## 3.2.2 Water Circulation, Fluctuation, and Salinity Determinations

As presented in Section 3.1, no perennial or intermittent streams are present within the proposed project site, with the closest perennial drainage being the New River. Several ephemeral streams traverse the project site, generally conveying water from the south to north in the western portion of the site and toward the northeast in the eastern portion of the site (see Maps 1 and 2 in Attachment B).

The ephemeral streams on the site are normally dry. They convey water infrequently and only following precipitation events of intensities sufficient to result in flowing water. Rainfall is minimal in this region and long periods of time may pass between rain events. When it does occur, flowing water within the streams is generally activated by summer monsoons that produce short-duration, high-intensity flash flooding. According to Chang (2010a), a 100 year flood event would result in approximately a one foot depth of water flowing in project area streams. Winter storms typically result in greater rainfall totals on average than the summer monsoons, but they are widespread, low-intensity events that result in little runoff. For example, stream gage records for San Felipe Creek located approximately 20 miles north of the project site indicate that August and September flows are nearly five times higher than the December to February flows. Although the majority of the rainfall occurs during winter, the majority of annual runoff occurs during the summer months of July to September.

Figure 1 of the SA/DEIS Soil and Water Resources section shows the location, watershed areas, and estimated 100-year peak discharges of 12 streams entering the project site from the south. Stream flow estimates have been made for these watersheds using a rainfall/runoff model (5ES, 2008a). This model uses rainfall estimates (2.62 inches over a 6-hour period for a 100-year event), soil type, and area and topographic information to estimate peak runoff. Watershed areas for the streams, shown in Figure 1 of the SA/DEIS Soil and Water Resources section, range from 58 to 1,574 acres, averaging 548 acres. The estimated 100-year discharges range from 57 cubic feet per second (cfs) to 777 cfs.

The 100-year discharge represents the discharge from a flood event with an annual probability of occurrence of 1%. Commonly called the 100-year flood, a flood of this magnitude is expected to occur, on average, once every 100 years. Since there is a 1% chance that this flood occurs every year, it is possible for more, or fewer, than one flood of this magnitude to occur in a 100-year period. The 100-year flood has been designated by the Federal Emergency Management Agency (FEMA) as the national regulatory flood for flood insurance and floodplain management purposes (See Map 2 in Attachment B).

As the ephemeral streams pass through the project site, some combine and form new watersheds. Figure 1 of the SA/DEIS Soil and Water Resources section shows the location, watershed areas, and 100-year peak discharges for ten watercourses exiting the site toward the north and east. Watersheds for these streams range from 147 to 18,856 acres in area, averaging 3,246 acres (median 1,274 acres). The 100-year discharge for these watersheds ranges from 126 cfs to 4,223 cfs.

Discharges for more frequent floods have also been determined. The 25-year peak discharges, with 4% chance of occurrence in any given year, are roughly 50% of the 100-year peaks given in Figure 1 of the DEIS Soil and Water Resources section. The 10-year discharges, with 10% chance of occurrence per year, are roughly 30% of the 100-year peaks. The 5-year discharges, with 20% chance of occurrence per year, are roughly 15% to 20% of the 100-year peaks. For instance, for concentration point "CS", the estimated discharges are: 100-year = 777 cfs; 25-year = 397 cfs; 10-year = 217 cfs; and 5-year = 119 cfs.

Flows exiting the site on the north in the Phase I area are returned to the site at a point east of Plaster City, where they join other on-site flows in the Phase II area. All Phase II flows eventually exit the site on the east, overtop Dunaway Road, and drain toward the Westside Main Canal. This large drainage feature located south of Plaster City consolidates flows from much of the eastern portion of the property and is mapped as a FEMA floodplain. Flows of sufficient volume and discharge would be conveyed east to the Westside Main Canal, where IID has created a series of rough sediment detention basins to mitigate the effect of sediment discharge on water quantity and quality of the the irrigation canals . Nonetheless, IID has communicated to the Corps that regular overflows into the Westside Main Canal occur (personal communication, January 7 and August 17, 2009).). The Westside Main Canal flows north and at several locations can, in large events, confluence with the New River. Both the Westside Main Canal and the New River empty into the Salton Sea.

Flooding is considered to be that area of a channel or area adjacent to a channel that is subject to inundation by channel flows. Flooding can occur anywhere there is a natural drainage on the project site. The FEMA prepares 100-year flood maps for flood insurance purposes and for floodplain management use by local agencies. FEMA map panels 06025C-1655C and 06025C-1675C cover the project site. Two watercourses, corresponding to £2 to Dunaway and C North on Figure 1 of the SA/DEIS Soil and Water Resources section have been mapped by FEMA as Zone A, which means 100-year flood zone with no base flood levels determined. These are considered approximate flood zones. Figure 2 of the SA/DEIS Soil and Water Resources section shows the location of the FEMA-mapped floodplain on the project site (also shown in Map 2 of Attachment B).

FEMA maps do not cover all floodplains. Rural areas, such as the project site, are commonly not mapped. Independent floodplain mapping has been performed based on the discharges given in Figure 1 of the SA/DEIS Soil and Water Resources section. This flood mapping is shown in Figure 3 of the SA/DEIS Soil and Water Resources section and shows floodplains associated with 24 streams and one sink area (Basin D Lake) on the project site.

Salinity is expressed as the electrical conductivity of the soil saturation extract, in mmhos per centimeter (mmhos/cm) at 25 degrees Celsius. Salinity estimates for soil series types present on the site were derived by the USDA, SCS (1981) based on field and laboratory measurements of soils at representative sites in the Imperial Valley area. Results of these estimates indicated that: Glenbar, Indio, and Rositas soil series generally exhibited salinity levels of less than 4 mmhos/cm; Meloland and Vint soil series generally exhibited salinity levels of 2-8 mmhos/cm; and Imperial soil series generally exhibited salinity levels of 4-8 mmhos/cm;

## 3.2.3 Suspended Particulate/Turbidity Determinations

No perennial or intermittent streams are located within the project site, and no water quality data is available for the site. Water quality of surface runoff flows would be dependent on materials picked up on the ground surface, which is currently natural desert. The downstream disposition of surface runoff from the site is the desert area north of the project site in Coyote Wash and west of the Westside Main Canal, possibly the Westside Main Canal itself, local drainage and irrigation ditches west of the Westside Main Canal, the New River, and eventually the Salton Sea (See Maps 1 and 2 in Attachment B).

#### 3.2.4 Contaminant Determinations

As previously stated, the downstream deposition of surface runoff from the site is the desert area west of the Westside Main Canal, possibly the Westside Main Canal itself, local drainage and irrigation ditches west of the Westside Main Canal, the New River, and eventually the Salton Sea.

The New River is considered highly polluted from agricultural runoff, sewage from Mexico, and discharges from manufacturing plants in Mexico, and is listed as impaired under Section 303(d) of the Clean Water Act for a wide range of pollutants including, but not limited to: trimethylbenzene, chlordane, chloroform, chlorpyifos, copper, DDT, diazinon, dieldrin, mercury, meta-para xylenes, nutrients, organic enrichment, pesticides, and selenium. The Salton Sea is listed as impaired for nutrients, salinity, and selenium.

The RWQCB identifies beneficial uses of waters in the State that may be protected against water quality degradation. These include such uses as domestic, municipal, agricultural, recreation, natural resources, and aesthetic enjoyment. Beneficial uses identified for stream, in the west Colorado River basin (Colorado River Basin Regional Water Quality Control Board, 2006) include groundwater recharge, non-contact water recreation, and wildlife habitat.

Groundwater in the Coyote Wells Valley Groundwater Basin is type sodium bicarbonate-chloride. Total dissolved solids (TDS) content ranges from 750 to 1,240 milligram/liter (mg/L) in shallow wells to 300 to 450 mg/L in deeper wells (California Department of Water Resources, 1973). Fluoride levels in some wells are as high as 3.5 mg/L (California Department of Water Resources, 2003). Water quality in the Imperial Valley Groundwater Basin varies extensively throughout the basin. TDS content ranges from 498 to 7,280 mg/L in the basin. Department of Health Services data from five public supply wells show an average TDS concentration of 712 mg/L with a range from 662 to 817 mg/L. In general, groundwater beneath the basin is unusable for domestic and irrigation purposes without treatment. TDS values typically exceeding 2,000 mg/L are reported from a limited number of test wells

drilled in the western part of the basin. Groundwater in areas of the basin has higher than recommended levels of fluoride and boron. Approximately 7,000-acre-feet per year of groundwater is estimated to recharge the basin from the New River which drains the Mexicali Valley. This groundwater is related to surface flow from the highly polluted New River and negatively affects groundwater quality in the basin (California Department of Water Resources, 2003).

## 3.3 Biological Characteristics

As described previously, ephemeral desert streams traverse the site from south to north and south to northeast conveying flows following a substantial rainfall. The vegetation community type of the streams, classified as Sonoran creosote bush scrub, also contain sparse and isolated stands of mesquite (SES 2008a). Within the streams several species supported that are indicative of surface and shallow surface flows and which do not occur in the uplands include burrobush (Ambrosia dumosa), big galleta (Pleuraphis rigida), button brittlebrush (Encelia frutescens), and Schott's dalea (Psorothamnus schottii). The ephemeral streams generally contain greater vegetative diversity and density than the creosote bush scrub habitat outside of the streams (SES 2009d). For the IVSP site, the CORPS jurisdictional WUS is approximately 881 acres. The condition of the desert streams was evaluated using the CRAM as summarized previously in Section 3.1.2.

During the CRAM effort, point intercept transects were used on certain plots to better classify the vegetation of the streams within the project area. Overall, the percent cover of plants was 28.0 percent, which is higher than the surrounding upland areas where there are wide areas that are almost barren. The numbers of species observed on primary streams were 6.8 native and 1.6 non-native species. For secondary streams, the average number of native and non-native species observed within a transect were 5.7 and 0.8 species, respectively.

The Co-Dominant Species submetric of CRAM is assessed as living vegetation that comprises at least 10% relative cover within each plant layer identified in the AA. To be classified as a plant layer, the cover in that height layer must be at least 5% total cover. Most stream sites assessed had short (< 0.5 m tall) and medium (0.5-1.5 m tall) layers with seven of 84 sites (eight percent) having a tall layer (1.5-3.0 me tall). The seven most common co-dominant native species were burrobush, six-week threeawn (Aristida adscensionis), button brittlebrush, creosote bush, big galleta, and Schott's dalea. Non-native species that were co-dominant in some stream sites are tumble mustard, Asian mustard, and common Mediterranean grass.

Primary streams on the project site originate in the Yuha Desert to the south and flow under I-8. The primary streams are typically wider with larger flows than the secondary streams. During the CRAM effort, measurements of Ordinary High Water Mark (OHWM) and width of the active floodplain were wider than the secondary streams. The average OHWM for the primary streams measured was 10.9 m and the average active floodplain width was 57.4 m. The average OHWM for the secondary streams was 7.3 m and the average active floodplain width was 28.2 m. In addition, the species composition of the primary streams differed from the secondary streams. The primary streams had 21.9% cover of plants compared with 34% cover for the secondary streams.

Off-site linear features, such as the reclaimed water pipeline, would either span the seven irrigation canals and the New River via attachment to bridge crossings or other structures or go under the waterbodies via directional boring. The canals and the New River are considered WUS (SES 2009c). Seepage from some of the canals has created adjacent wetlands with large stands of tamarisk scrub (*Tamarix* sp.) and arrow weed (*Pluchea sericea*) scrub, which are under federal jurisdiction. The estimated acreage of WUS is 2.33 acres (SES 2009c).

The SWWTF is located at 1898 West Main Street in Seeley, California, approximately 13 miles east of the project site. According to the Draft MND for the SWWTF upgrades (Dudek 2009), the SWWTF site supports developed/disturbed land with limited to no vegetative growth, and discharges up to 0.15 cfs of effluent to the New River through an unlined earthen channel that is approximately 800 feet long and 50 feet wide (0.92 acre). The approximately 0.92 acre channel supports narrow-leaved cattail (*Typha latifolia*), tamarisk, arrow weed, and Emory's baccharis (*Baccharis emory*!), but because of its small size and fragmented character it was considered sub-optimal for breeding use by Yuma clapper rail and other riparian bird species (Dudek 2009). A vegetation map has been completed for the area around the SWWTF, including 500 feet upstream and downstream of the site on the New River. This map is included in the Seeley Environmental Review Update which is part of the EIS (Dudek 2010).

## 3.3.2 Threatened and Endangered Animals

One species proposed for listing as threatened and one federally listed endangered species have been detected on the project site. Flat-tailed horned lizard (*Phrynosoma mcallii*, FTHL) is proposed for listing as Threatened and Peninsular bighorn sheep (Distinct Population Segment of desert bighorn sheep: *Ovis canadensis nelsoni*, PBS) is federally listed as endangered. Designated Critical Habitat (DCH) for PBS exists approximately four miles west of the project site.

Another federally listed endangered species, the Yuma clapper rail (Rallus longirostris yumanensis), has potential habitat and known populations within 2 miles north of the SWHTF near where the New River empties into the Salton Sea, and one mile south in an area known as Fig Lagoon (Dudek 2010). Another state-listed bird, the California black rail (Laterallus jamaicensis coturniculus), had potential habitat in similar areas as the Yuma clapper rail. Surveys for the special status species in the vicinity of SWWTF have been negative. Endangered and threatened species and impacts associated with the Proposed Action and the various alternatives are discussed in detail in Section C.2 - Biological Resources of the SSA and in Section 4.3 of the Final EIS. Formal Section 7 consultation with the United States Fish and Wildlife Service (USFWS) was initiated on December 16, 2009 for the PBS and January 29, 2010 for the FTHL. The USFWS has preliminary concluded that the SWWTF upgrade will have no effect on listed species.

In the summers of 2007 and 2008, focused protocol surveys were conducted for the FTHL. Two FTHL were detected along the eastern boundary, one within the Project Site and one just outside, and four desert horned lizards were detected in the Project Site during 2007 focused surveys. Two deceased flat-tailed horned lizards were observed along the off-site transmission line in 2007. One flat-tailed horned lizard and two desert horned lizards were detected on the Project Site during 2008 focused surveys. Based on the findings, it was

determined that the entire plant site and off-site transmission line provide suitable habitat and food sources to support FTHLs.

Due to the small size and fragmented character of the small wetland area below the SWWTF, the area is considered sub-optimal for breeding use by Yuma clapper rail and other riparian bird species (Dudek 2009). Focused protocol surveys for the Yuma clapper rail, California black rail and other sensitive were conducted near the SWWTF in April and May of 2010. No individuals of any sensitive species had been detected at the time of submitting this analysis (URS 2010). It should be noted that most protocol surveys for listed birds are designed to detect birds during migration and courtship behavior on territories, with later surveys focused on determining breeding status and brood fledging. Early negative surveys usually result in no birds being detected during the breeding period either.

PBS were not observed during field surveys in 2007 and 2008; however, a small herd of five females and/or juveniles were observed in the north-central portion of the Project site during a site visit by Dr. Joe Platt of the company PBS£1 on March 25, 2009. The USFWS is evaluating the potential use of the site by the PBS as foraging habitat. The USFWS results will be included in the joint Biological Opinion/Conference Opinion for the PBS/FTHL, respectively at the conclusion of the formal Section 7 Consultation with BLM and the Corps. At that time, the Corps will incorporate any additional analysis or information into the final 404(b)(1) analysis.

## 3.3.3 Fish, Crustaceans, Mollusks, and Other Aquatic Organisms in the Food Web

As presented in Section 3.1, no perennial or intermittent streams are present within the proposed project site, with the closest perennial drainage being the New River. In addition, the waterline from the proposed project site to the SWWTF would avoid all irrigation canals, ditches, and the New River either through spanning the water features along existing bridges or by directional boring.

As for aquatic organisms downstream of the SWWTF, it is well documented that the New River is highly polluted making it difficult for any aquatic life to thrive. The Regional Water Quality Control Board monitoring data show that dissolved oxygen (DO) concentrations in the New River near the Mexican Border are consistently below 1.0 mg/l, which represents a lethal environment for most aquatic organisms (e.g., there is not enough DO for the fish to breath) and violates the State standards for the New River. The SWWTF has in fact been a contributor to this problem—having been cited on multiple occasions for violating NPDES pollutant limits with their discharge to the river system.

Between 1993 and 2002 DeVlaming (2004) conducted a series of studies to assess water quality using three aquatic species from the New River: a cladoceran (Ceriodaphinia dubia), a mysid (Neomysis mercedis), and a larval fish (Pimephales promelas). Although no mortality was observed with the P. promelas, high-level toxicity to the invertebrate species was documented in samples from the New River during many months of each year. Toxicity identifications and chemical analyses identified the organophosphorus insecticides (OP), holorpyrifos, and diazinon as the cause of C. dubia toxicity. The extent of the C. dubia mortality was highly correlated with quantities of these OPs applied in the watersheds. C.

dubia mortality occurred during more months of our 2001/2002 study than in the 1990s investigations. During 2001/2002, the extensive C. dubia mortality observed in New River samples was caused by OP insecticide pollution that likely originated from Mexico. Mortality to N. mercedis in New River samples was likely caused by contaminants other than OP insecticides. No aquatic sampling was conducted along the New River related to the IVSP.

#### 3.3.4 Other Wildlife

The project area is known to support a variety of special status wildlife species. Due to the suitable habitat being present, most of the special status wildlife species listed in Biological Resources Table 2 (SA/DEIS Page C.2-17) have a moderate potential of occurring on the project site, though they were not detected during surveys. Species which were detected on-site, the detection of wildlife signs (i.e., scats, burrows, or tracks), or those species with a high potential for occurrence are discussed in more detail in the SA/DEIS, SSA, and in Sections 3.3 and 4.3 the Final EIS. Vegetation in the desert wash contains a greater vegetative diversity and density than the areas outside of the streams and provide wildlife habitat and movement corridors for the species listed in Biological Resources Table 2 (SA/DEIS Page C.2-17).

The area surrounding the proposed Project is dominated primarily by Sonoran creosote bush desert shrubland. Resident birds in this vegetation community include black-throated sparrows, loggerhead shrikes, LeConte's thrashers, and greater roadrunners. Several dry streams run through the Project area that collect precipitation and nutrients from the surrounding watershed, which promotes greater floral variety. These desert wash habitats are scarce within the arid environment but are estimated to support ninety percent of Sonoran Desert birdlife. Phainopeplas, ashthroated flycatchers, verdin, crissal, LeConte's, Bendire's thrashers, long-eared and western screech owls, black-tailed gnatcatchers, Gila and ladderbacked woodpeckers, Lucy's warblers, northern mockingbirds, and loggerhead shrikes, all inhabit desert streams (CaIPIF 2006).

The USFWS developed the Birds of Conservation Concern (BCC) to accurately track the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the highest conservation priorities and draw attention to species in need of conservation action (USFWS 2002). Table 15 lists the BCC species for Region 33 (Sonoran and Mojave Deserts-U.S. portion only) that have the potential to use the desert shrublands of the geographic scope as resident or wintering grounds.

Table 15. Birds of Conservation Concern for Region 33 (Sonoran and Mojave Deserts-U.S. portion only) that have the potential to be resident or wintering birds in the geographic extent.

Status <sup>1</sup>
Wintering
Resident
Resident
Wintering
Resident
Resident
Wintering

Determination of whether birds had potential habitat in the Project area and their status was determined using Birds of North America Online (Poole 2005) and Wildlife of Salton Sea National Wildlife Refuge, Colifornia (USFWS 1993).

USFWS has identified several BCC that have the potential to migrate over the Project area and use the Salton Sea as a breeding area or wintering area. Table 16 identifies the BCC species for Region 33 (Sonoran and Mojave Deserts-U.S. portion only) that have the potential to migrate over the geographic scope of this analysis.

Table 16. Birds of Conservation Concern for Region 33 (Sonoran and Mojave Deserts-U.S. portion only) that have the potential to be resident or wintering birds in the geographic extent.

Species	Status <sup>1</sup>	Breeds at the Salton Sea	Winters at the Salton Sea
Black rail	Migrating	Υ	N
Snowy plover	Migrating	Y	N
Whimbrel	Migrating	N	Y
Long-billed curlew	Migrating	N	Υ
Marbled godwit	Migrating	N	Υ
Red knot	Migrating	N	Υ
Gull-billed tern	Migrating	Y	N
Black skimmer	Migrating	Y	N

<sup>1-</sup> Determination of whether birds had potential habitat in the Project area and their status was determined using Birds of North America Online (Poole 2005) and Wildlife of Salton Sea National Wildlife Refuge, California (USFWS 1993).

#### 3.3.5 Special Aquatic Sites

The IVSP site does not contain any special aquatic sites. The jurisdictional WUS found on the project site include ephemeral streams that are largely dominated by upland plant species.

As described above, a small (less than 0.3 ac) brackish water emergent wetland occurs immediately downstream from the SWWTF outfall discharge. The wetland type typically occurs in streams, seeps, and other perennially-moist low places where the water table is close to or at the ground surface.

## 3.4 Potential Effects on Human Use Characteristics

#### 3.4.1 Municipal and Private Water Supplies

Runoff from the ephemeral streams within the proposed project area does not recharge municipal or private water supplies. Therefore, no impacts are expected to municipal and private water supplies as a result of construction and operation of the proposed project.

## 3.4.2 Recreational and Commercial Fisheries

There are no recreational or commercial fisheries located in the New River, Westside Canal, or the Salton Sea. The proposed IVSP would not impact any recreational or commercial fisheries during its construction or operation.

## 3.4.3 Water-Related Recreation

The SA/DEIS and Final EIA did not identify any water-related recreation in the vicinity of the Proposed Project or any water-related recreation activities downstream of the Proposed Project that would be affected by the proposed project (Land Use, Recreation, and Wilderness section of the SA/DEIS and Land Use and Corridor Analysis, Recreation, and Special Designations of the Final EIS). The nearest water-related recreation is boating, kayaking, fishing, and migratory bird watching at the Salton Sea. There are seven marinas surrounding the Salton Sea, from which boaters and fisherman launch.

#### 3.4.4 Aesthetics

The Visual Resources section of the SA/DEIS and Final EIS provides a comprehensive analysis of the proposed project in relation to the surrounding viewshed.

# 3.4.5 Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves

The proposed IVSP is not located near any National Parks, Monuments, Seashores, or research sites. The wilderness areas closest to the proposed project site are: the Yuma Area of Critical Concern—which is adjacent to the southern boundary of the project site, the Jacob Wilderness located approximately 4 miles southeast of the project site, and the Coyote Mountains Wilderness located approximately 7 miles northeast of the project site immediately beyond the Anza Borrego State Park. For more information, see section C.8 - Land Use, Recreation, and Wilderness of the SA/DEIS or subsections 3.0 titled Land Use and Corridor Analysis, Recreation, Special Designations of the Final EIS.

## 4.0 Impacts Analysis

## 4.1 Impacts to Waters of the U.S.

#### 4.1.1 Construction Impacts

Permanent impacts to the ephemeral streams will result from the placement of SunCatchers on 24-inch bases, and the construction and/or maintenance of the arterial and perimeter roads across project area streams. All stream crossings, with the exception of the Lifeline Road G will be at grade Arizona crossings. The Lifeline Road G will be spanned over Wash G with a concrete box culvert structure. Temporary impacts to the ephemeral streambeds include the underground placement of the electrical collection system and the hydrogen distribution system, and temporary construction disturbances associated with vehicle and equipment movement in streambeds (SES 2009e).

All arterial roads would be 24 feet in width and the main access route would be paved due to the high traffic. All the perimeter roads and maintenance routes down SunCatchers rows would be unpaved and 10 feet in width (Table 17). The unpaved roads would be treated with a soil tackifier to maintain the integrity of the road; however, none of the roads located within streams would be treated. Map 5 of Attachment B shows the proposed project layout with the location all roads, SunCatchers, the Main Services Complex, the off-site transmission line, and the off-site waterline that connects to the SWWTF.

The layout of the proposed IVSP would maintain the local pre-development drainage patterns except in a few locations such as the Main Services Complex and Substation, which are primarily situated in the uplands, but adjacent to secondary streams. Water discharge from the site would remain the same with western streams discharging to the north and eastern streams discharging at the eastern boundary of the project site. The paved roadways would have a low-flow, unpaved swale or roadway dip as needed to convey nuisance runoff to existing stream channels. It is expected that stormwater runoff would flow over the crown of the paved roadways, which are typically less than 6 inches from swale flow line to crown at centerline of roadway, thus maintaining existing local drainage patterns during storms. This design is preliminary and may change upon further review by the Corps in the next design phase or based on the required review and approval by the Regional Water Quality Control Board (RWQCB) under the CWA Section 401 Certification process. In addition, the Final EIS includes a section titled "Mitigation, Project Design Features, and Other Measures" within each discipline area including Hydrology, Water Use and Water Quality. The Corps will incorporate these measures appropriately into the project or as Special Conditions of the permit to minimize storm water impacts.

Table 17. Types of impacts and the width or area of their disturbance.

Type of Impact	Width or Area of Disturbance		
Arterial Roads (Paved)	24 feet		
Perimeter Roads (Unpaved)	10 feet		
Maintenance Roads (Unpaved)	10 feet		
Main Services Complex	0.7 acres		
Utility Trench	3 feet		
SunCatcher Pedestal	4 square feet		
Waterline	Co-located beneath perimeter road over Stream E		

Arterial roads would cross 93 jurisdictional WUS. 36 of these arterial road crossings would be at-grade Arizona crossings. Diagram 1 of Attachment C shows a diagram of how they would be constructed. The crossing would be a low water crossing that is not paved and no tackifier would be applied.

Some impacts to jurisdictional streams were unavoidable due to safety and security concerns. According to multiple publications prepared by the American Association of State Highway and Transportation Officials (AASHTO), 10 foot wide lanes are acceptable on low-speed facilities to ensure the safety of the driver and any passengers. Likewise, on Page C.5-11 of the SA/DEIS, CEC's proposed conditions of certification HAZ-4 and HAZ-5 address both construction security and operations security plans and require that there be a perimeter fence and road installed to ensure the security of the site. In addition, the intersections of the arterial roads need to be a certain width in order to allow the flatbed trucks that transport the SunCatchers to the field to safely negotiate the intersections.

The preliminary LEDPA would not place SunCatchers or associated maintenance roads in the entirety of streams H, C, I, and K and the southern portions of streams E and G (Map 5 of Attachment B). Along the northern portions of streams E and G, a 200 foot wide corridor was left through the center of the wash as a FTHL movement corridor where SunCatchers will not be installed, but maintenance roads are still proposed. While placing SunCatchers in these streams was avoided or minimized, the applicant needs access throughout the project area and requires arterial and perimeter road crossings of the avoided streams. The applicant has reduced the number of crossings to only those they currently believe to be necessary for operation of the proposed project and to ensure that the perimeter of the project is secure. Table 18 lists the avoided streams and the number and type of road crossings per stream.

Table 18, Number and type of road crossings for the avoided washes.

		Primary Streams										
	- 1		c		к		Е		(		Н	
Type of Road	Number Of Crossings	Acres Of Impacts	Number Of Crossings	Acres Of Impacts	Number Of Crossings	Acres Of Impacts	Number Of Crossings	Acres Of Impacts	Number Of Crossings	Acres of Impacts	Number of Crossings	Acres of Impacts
Arterial	0	0	4	0.41	3	0.39	3	0.39	1	0.01	0	0
Perimeter	0	0	0	0	0	0	0	0	0	0	0	0
Fence	1	0.002	3	0.004	3	0.003	1	0.002	2	0.013	1	0.005
Total	1	0.002	7	0.533	5	0.533	7	0.393	3	0.015	1	0.005

The construction and installation of the SunCatchers and the requisite electric and hydrogen gas utilities requires excavation of two trenches that would parallel the rows of SunCatchers in a north-south direction. The necessary electrical lines would be in one trench and the hydrogen system would be in the other trench (Figure 8). The electrical trench would be 24 inches wide and 30 inches deep and the hydrogen trench would be 4 inches wide and 24 inches deep. Table 21 shows the temporary impacts that the trenching will have to primary and secondary streams.

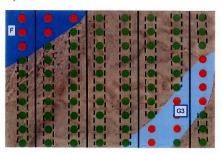


Figure 8. Current design of SunCatchers with maintenance roads bisecting two rows of SunCatchers with utility trenches running parallel to each side of the maintenance road. A utility trench then extends to each SunCatcher to connect it to the overall system.

Brush trimming in upland areas will be conducted between alternating rows of SunCatchers during construction only, in an effort to reduce fire ignition potential and to provide safe construction conditions. Brush trimming will consist of cutting the top of the existing brush

while leaving the existing native plant root system in place to minimize soil erosion. It is anticipated that trimming will be limited to individual or groups of shrubs (no grasses or forbs) that occur along the utility trenches, at SunCatcher locations, and along project area road networks, to the extent practical. Within defined bed and bank areas of WUS, mowing will be limited to the occasional removal of shrubs that occur within the road crossing of a stream. Across streams, some vegetation will be trampled or uprooted during trenching (for hydrogen and electrical lines) activities in these areas. No mowing would occur within streams H, I, K, C, within the areas south of the transmission corridor for streams E and G or within the 200 foot wide wildlife movement corridors in streams E and G north of the transmission line. A restoration plan for temporary construction related impact areas will be developed that will include the reestablishment of the elevations and contours of the disturbance areas, revegetation to minimize soil and wind erosion, and weeding until the sites meet pre-disturbance conditions. During operation and to minimize shading on SunCatchers and prevent potential brush fire hazards, vegetation trimmings would occur by hand as necessary.

After brush has been trimmed, blading for roadways and foundations would be conducted between alternating rows to provide access to individual SunCatchers. Blading would consist of limited removal of terrain undulations. Although ground disturbance would be minimized wherever possible, the applicant proposes that localized rises or depressions within the individual 1.5 MW solar groups would be removed to provide for proper alignment and operation of the individual SunCatchers. Paved roadways would be constructed as close to the existing topography as possible, with limited cut-and-fill operations to maintain roadway design slope to within a maximum of 10%.

A perimeter fence is required by the CEC for security purposes and will surround the entire site (Diagram 2 of Attachment C). The perimeter fence will be installed 6-inches above the ground at stream crossings to allow for FTHL movement within the washes and adjacent uplands. In addition, the height and type of fence is expected to allow for unrestricted hydrologic and sediment transport because the soils on site are sand and there is an absence of woody vegetation or debris that can be caught up in the fence. The fence is chain link and will not affect FTHL movement in upland areas where the fence runs to the ground. A temporary perimeter fence would be constructed around Phase 1 of the project in order to secure the site during construction and operation. This temporary fence would be removed when Phase 2 is constructed and the area of temporary disturbance restored. The substation would also require an additional section of fencing. Fence posts would be constructed every ten feet and would be pushed into the substrate. Corner posts would require a concrete base be poured for stability. Corner posts would require a hole 12 to 18 inches wide and at least three feet deep (Diagrams 6 and 7 of Attachment C). Table 19 includes the total acres of permanent impacts from the installation of fence posts within jurisdictional streams. In total, the perimeter fence would have 0.13 acre of permanent impacts to WUS.

Table 19. Perimeter fence impacts to primary and secondary streams and the total number of crossings.

		Permanei	nt
Impacts	Primary	Secondary	Total
Perimeter Fence <sup>2</sup>	0.1	0.03	0.13

<sup>&</sup>lt;sup>1</sup> - Number of fence posts was calculated assuming that there would be a fencepost every 10 feet.

An approximately 12-mile reclaimed water supply pipeline is proposed for construction from the SWWTF to the project site along Evan Hewes Highway. Off-site the proposed reclaimed water line would either span or go under seven irrigation canals and the New River. There would be no impacts to any of these canals, adjacent wetlands, or the New River as Best Management Practices (BMPs) would be utilized to avoid impacts to WUS. These BMPs include either boring under or using existing bridges or spans to cross the irrigation ditches, associated adjacent wetlands, and the New River. As required by the Corps and other regulatory agencies, the Applicant will develop a frac-out plan prior to any boring activities. On-site the waterline would be co-located (buried beneath) proposed roadways that cross Wash E. As such, no additional impacts to WUS are created by the proposed waterline.

Overall permanent and temporary impacts of the proposed project are listed in Table 21. This includes the permanent disturbance of placing 3,442 SunCatchers in jurisdictional streams (Table 20), all paved and unpaved roads constructed within jurisdictional streams, the construction of the Main Services Complex and Substation, and buried electric and hydrogen utility line trenches. No fill or dredging operations are anticipated with the proposed upgrade to the SWMTE.

Table 20. Number of SunCatchers in ephemeral streams for Phases 1 and 2 of construction.

Number of SunCatchers	Primary Streams	Secondary Streams	Total
Phase 1	376	568	944
Phase 2	1,591	713	2,304
Overall	1,967	1,281	3,248

The substation would be constructed within a small area (0.7 acre) of primary and secondary streams and would require a diversion ditch to reroute water away from the facility. Diagram 3 in Attachment C provides an engineered drawing that depicts how the stream would be diverted around the Substation building and complex. This design is under review by the Corps and will be modified, as necessary to ensure that the diversion does not retard hydrologic or sediment transport of the secondary stream and cause indirect impacts to downstream areas.

<sup>&</sup>lt;sup>2</sup> – Acres of impacts were calculated assuming a hole two feet in diameter.

Table 21. Temporary and permanent impacts to jurisdictional streams due to construction of the proposed imperial Valley Solar Project.

		Pern	nanent	Terr	рогагу	
Impacts		Primary	Secondary	Primary	Secondary	
E ///	Arterial Roads	7.4	2.7	0.0	0.0	
	Perimeter Roads	2.0	0.5	0.0	0.0	
Ro Te	Maintenance Roads	15.2	9.2	0.0	0.0	
	Temporary Road	0.03	0.2	0.0	0.0	
Waterline		0.0	0.0	0.0	0.0	
Main Se	ervices Complex	0.01	0.7	0.0 0		
SunCat	chers (2 ft er) <sup>1</sup>	0.2	0.1	0.0	0.0	
Perime	ter Fence <sup>2</sup>	0.1	0.03	0.0	0.0	
Electric	cal and Hydrogen es <sup>3</sup>	0.0	0.0	8.6	5.4	
Total		24.9	13.3	8.6	5.4	

 $<sup>^1</sup>$  – Impacts for the SunCatcher pedestals were calculated at 8.86 x  $10^5$  acres (4 square feet) per pedestal (3,214 pedestals total).

## 4.1.2 Operational Impacts

During operation of the IVSP, the perimeter road would be regularly patrolled for security purposes. On average, the perimeter road would be used for surveillance 2 times a day. The perimeter road has 52 stream crossings. There would be a total of 3,120 stream crossings by vehicles per month for security purposes.

The SunCatchers require washing once a month to maintain efficiency. In addition, maintenance would be required as SunCatchers break down or require regular maintenance. There are 3,248 SunCatchers located in jurisdictional streams. It is assumed that each SunCatcher would be visited once a year for maintenance that would equal 13 vehicle trips annually to each SunCatcher. Over the course of an average month, there would be 3,518 crossings of the ephemeral streams for the regular maintenance of the SunCatchers. The vehicles would include a maintenance truck and a water truck. Table 22 shows the approximate number of stream crossings per month including the type of vehicles used during operation of the power plant.

The Applicant would not cross the streams when the streams are flowing or after rain events when the ground is soft except for emergency situations. As required by the Final EIS, the Applicant is required to prepare multiple plans to protect water quality from the construction and operation of the project. In particular, mitigation measures required by the Final EIS in

the Hydrology, Water Use, and Water Quality Section include development of a Drainage Erosion and Sedimentation Control Plan, Industrial Facility SWPPP, and an NPDES General Permit for Construction Activity. One or several of these documents will include proper BMPs and protocols that require vehicles to be regularly maintained at appropriate locations within the Main Services Complex. No maintenance of vehicles in streams or along roads will be permitted unless in emergency situations. In the event that an emergency occurs and contaminants are released, one or several of these plans will contain BMPs and cleanup measures to be followed. See the Final EIS for details required within each plan.

Table 22. Wash crossings required monthly during normal operation of the proposed project including the type of vehicle.

Type of Activity	Vehicles used	Number of wash crosses per month
Patrolling the perimeter road <sup>1</sup>	Pickup Truck	3,120
Routine SunCatcher washing <sup>2</sup>	Water Truck	3,248
Routine and On-call SunCatcher maintenance <sup>3</sup>	Maintenance truck	271

<sup>1 -</sup> It is assumed that TSNA would patrol the perimeter of the project area two times a day.

#### 4.1.3 Indirect Effects Related to Scour and Vegetation Removal in Streams

An indirect effect of SunCatchers installed in streams would be the scour created around the pedestals during and after a rain event due to the obstruction in the flow path and due to the bare soil following vegetation removal. The hydraulics of flow were used to compute the depth of local scour as well as the area affected by scour using the equation recommended by the Federal Highway Administration given in Hydraulic Engineering Circular No. 18, FHWA, 2006 by Chang Consultants (2010b). Wash D was used as a sample wash to model the indirect effects of scour around SunCatcher pedestals placed in streams. Chang's modeling used a 100-year flood event as the precipitation event and determined that the average scour radius during the storm event was 44.9 square foot circle around the SunCatcher pedestal. The scour hole gets partially refilled during the falling stage of the storm flow (i.e., the scour hole becomes smaller by the end of the storm). It calculates that 50% of the scour depth is refilled toward the end of the storm for a scour disturbance of 21.9 square feet around the SunCatcher pedestal (Chang 2010b). Table 23 quantifies the indirect effects related to scour of the SunCatchers placed in the streams on the project site.

It is anticipated that scour repair would be ongoing throughout the life of the project but would only require maintenance following large flood events. In addition, it is anticipated

<sup>2 -</sup> Each SunCatcher would be washed once a month.

<sup>3 -</sup> It is assumed that each SunCatcher would require maintenance once a year.

that trimming and/or removal of vegetation within the streams would continue throughout the life of the project; however, maintenance trimming would consist primarily of removing any shrubs or trees that shade the SunCatchers and any vegetation that would impede the ability of the SunCatcher to track the sun.

Table 23. Acres of scour around the bases of the SunCatcher pedestals during a 100-year flood event.

	Primar	y	Secondary			Total	
Construction Phase	# of SunCatchers	Acres of Scour <sup>1</sup>	# of SunCatchers	Acres of Scour <sup>1</sup>	# of SunCatchers	Acres of Scour <sup>1</sup>	
Phase 1	376	0.19	568	0.29	944	0.47	
Phase 2	1,591	0.80	713	0.36	2,304	1.16	
Overall	1,967	1.00	1,281	0.65	3,248	1.64	

<sup>1 –</sup> Acres of scour were determined using 21.9 square feet of disturbance per SunCatcher pedestal during a 100-year storm event (Chang 2010b).

## 4.1.4 Direct and Indirect Impacts to the Stream Condition

The above direct and indirect effects during construction and operation of the proposed project have the potential to adversely affect the ephemeral streams found on the project site. CRAM was used to assess the functionality of these streams and the results are discussed in Section 3.1.2. By dividing the four attributes of the CRAM methodology into their respective metrics, it is possible to frame a discussion about projecting (e.g. estimating) the above direct and indirect effects of the proposed project on the functionality of the ephemeral streams. Using the above impacts combined with how CRAM calculates a score, estimates how individual metrics such as buffer condition, structural patch richness, and number of plant layers would be affected by the project. Some of the projections will be quantitative, but given how certain attributes of the established CRAM Riverine module (Physical and Biological) did not adapt well to the ephemeral streambeds, some of the projections will be qualitative. The projections below will be used in section 5.0 to determine adequate mitigation to replace the functionality lost due to the proposed project. More detailed impacts analysis for the physical, chemical, and biological properties of the ephemeral streams are included in sections 4.2 and 4.3.

It should be noted that multiplying a CRAM score by the area or linear distance of an ephemeral streambed may not represent the true relationship between conditions at different scales. CRAM scores do not represent a functional capacity on a per acre or per unit basis (CWMW 2009). The use of CRAM in estimating potential impacts onto the functionality of the ephemeral streams is only one component of calculating impacts and of determining the proper mitigation ratios.

It should be noted that multiplying a CRAM score by the area or linear distance of an ephemeral streambed may not represent the true relationship between conditions at

different scales. CRAM scores do not represent a functional capacity on a per acre or per unit basis (CWMW 2009). The use of CRAM in projecting potential impacts onto the functionality of the ephemeral streambeds is only one component of calculating impacts and of determining the proper mitigation rations.

## 4.1.4.1 Buffer and Landscape Context

#### Landscape Connectivity Metric

For riverine wetlands, landscape connectivity is assessed as the continuity of the riparian corridor over a distance of about 500 meters upstream and 500 meters downstream of the assessment area. Of special concern is the ability of wildlife to enter the riparian area from adjacent upland buffer area and to move easily with adequate cover along the riparian corridor through the assessment area from upstream and downstream. Non-buffer land cover measuring more than 10 meters in length on either side of the stream riparian corridor upstream or downstream are considered breaks in the Landscape Connectivity. A description of what constitutes buffer can be found below in the "Buffer Metric" section.

The majority of the proposed project will be impacted by a network of unpaved maintenance roads, paved arterial and unpaved perimeter roads, utility trenches, and SunCatcher units spaced approximately 60 feet (north/south) by 112 feet (east/west) apart. The proposed project layout extends the roads and SunCatcher units through many of the ephemeral streams and up to the edge of most of the avoided primary streams (I, K, C, G, E, and H). Based on the current Riverine Module CRAM scoring method, this would effectively reduce the post-project scoring of the Landscape Connectivity metric to a "D" for all of the stream area in which the combined total length of non-buffer segments is greater than 200 meters either unstream or downstream.

#### **Buffer Metric**

The CRAM definition of Buffer "is the area adjoining the assessment area that is in a natural or semi-natural state and currently not dedicated to anthropogenic uses that would severely detract from its ability to entrap contaminants, discourage forays into the assessment area by people and non-native predators, or otherwise protect the assessment area from stress and disturbance." The buffer metric is composed of three submetrics: (1) percentage of the AA perimeter that has a buffer; (2) the average buffer width; and (3) the condition or quality of the buffer.

The proposed project will introduce a level of anthropogenic use that would not fit the current CRAM definition or examples of buffer (Collins et al). The SCCWRP assessment found the highest scoring areas for this metric were in the center of the Site away from existing anthropogenic uses such as I-8, Even Hewes Highway, and Plaster City. This is the only metric that uses a formula incorporating the 3 submetrics to determine the final scoring. If the percent of the AA perimeter that has a buffer is reduced to 0 percent, the entire metric score automatically becomes the equivalent of an overall score of "D". Except for ephemeral streams at the perimeter (I, G, and H) where the SunCatcher network will only be placed on a single side of the stream, the percent of the perimeter with buffer of all streams is

effectively reduced to 0 percent. Streams I, G, and H are also three of the six streams entirely or almost entirely avoided by the proposed project.

### 4.1.4.2 Hydrology

#### Water Source Metric

Water sources directly affect the extent, duration, and frequency of saturated or ponded conditions. Water sources include both natural and unnatural direct sources. Natural direct sources would include rainfall, groundwater discharge, and flooding. An example of an unnatural direct water source would be direct storm drain discharge.

The majority of the project site would remain 100 percent pervious, except for the arterial roads and building sites. The building sites consist of approximately 28 acres of impervious surfaces (buildings, paved parking, storage areas, etc.). The increased runoff expected from the building sites would be over-mitigated by capturing 100 percent of the runoff in a retention basin, where the storm runoff would be infiltrated and/or evaporated to the atmosphere. The Arterial roads consist of 104 acres of imperious surfaces. Unpaved maintenance and perimeter roads account for 219 acres and would be treated with a soil tackifier to maintain the integrity of the road except for within WUS. Unpaved roads treated with the tackifier have some degree of imperviousness necessary to stabilize the soil, but this percentage of impervious is currently unknown.

The maintenance plan requires that each SunCatcher unit will be washed 12 times per year. Total water use for 28,360 Suncatchers distributed over the 6,571 acre site is estimated to be 14.2 acre feet of water annually. The pan evaporation rate at the Site is over 140 inches per year, far exceeding the approximately 0.025 inches of water per year used over the 6,571 acre project site.

All of the 84 CRAM assessment sites scored an "A" for this metric (i.e. their freshwater sources are either precipitation or they naturally lack water in the dry season). There was no indication that unnatural (anthropogenic) sources of water contributed to any dry season flows. Because the majority of the project site will remain pervious and due to the high evaporation rate in the Yuha Desert, there would be virtually no change in the extent, duration, and frequency of saturated or ponded conditions of the ephemeral streams throughout the site and scoring of the Water Source metric would remain unchanged.

## Channel Stability Metric

Channel stability is assessed as the degree of aggradation (i.e., net accumulation of sediment on the channel bed causing it to rise over time), or degradation (i.e., net loss of sediment from the bed causing it to be lower over time). Eighty three (83) percent of the CRAM assessment sites scored a "B" for the Channel Stability metric, 12 sites scored an "A," and 5 sites scored a "C." Some indicators of aggradation were observed at most sites, none of which were considered severe. This is supported by the description of flow characteristics contained in the Initial Drainage Study Report conducted by Stantec (2008). The report describes the project site as an alluvial plain in which sediment is still being deposited from the upstream alluvial fan areas.

The CRAM assessment sites scoring lower then a "B" were primarily located at the downstream (northern) end where diversion of the ephemeral streams toward culverts under the railroad and Evan Hewes Highway caused additional deposition of sediment.

The majority of direct impacts to ephemeral streams will consist of the unpaved maintenance roads, paved arterial and unpaved perimeter roads, maintenance roads, and utility trenches. Additionally, the placement of SunCatcher units within ephemeral streams will have direct and indirect impacts. All project maintenance roads and perimeter roads (10 feet wide) and arterial (24 feet wide) will be constructed at-grade to minimize their impact to site hydrology. The at-grade roads will be similar in their construction to the existing transmission line access road and the BLM road network throughout the site.

Chang Consultants (2010a) determined that the at-grade road crossing would not cause major changes in sediment pattern. Chang Consultants (2010c) conducted an updated evaluation of the currently proposed project in which they reviewed changes to the proposed project along with areas of the project site not covered in the previous study; north of the existing transmission line and south of Evan Hewes Highway. From their modeling study, Chang Consultants determined that the streams within the proposed area of impact would not be subject to substantial changes in channel bed profiles for the existing and proposed conditions. This is additionally supported by the CRAM assessment where the 6 assessment areas located directly upstream and downstream of the existing transmission line road all scored a "B" or above.

Chang Consultants (2010b) also conducted a study of local scour around the 2 foot diameter pedestals on which the SunCatcher units will be installed. The pedestal supporting the each sunCatcher unit placed within the ephemeral streams will induce local scour during storm flow similar to that found around bridge piers. Scour analysis was based on modeling for the 100 year storm event. The results of the study indicate that while the area and depth of scour is largest during peak flow, the scour area becomes partially filled back in as storm flow recedes. Chang Consultants determined that the total area affected by the indirect effects of local scour around SunCatcher pedestals is less than one percent of the wash area.

The Channel Stability metric is assessed using a worksheet to identify observed field indicators of channel equilibrium, active degradation, and active aggradation. The 84 CRAM assessment sites had a cumulative total of 198 indicators of equilibrium, 31 indicators of degradation, and 162 indicators of aggradation. Because of the landscape position of the project site in the watershed, there is a continuous input of sediment delivered to the project site from the upstream areas. While some localized scour is expected directly around SunCatcher pedestals, the effects are minimal in relation to the overall area of the ephemeral streams and the amount of sediment coming into the project site.

The indirect effects of the project roads, utility lines, and SunCatcher pedestals and vegetation clearing on Channel Stability as assessed in CRAM would not be expected to change for the six streams that are avoided or almost entirely avoided (I, K, C, E, G, and H). It is probable; however, that the network of paved and unpaved roads, particularly maintenance roads, that would need to be constructed (e,g, cut) into stream banks would cause localized

erosion at each bank crossing. In addition, where SunCatchers are placed near the banks of each stream, either within the streambed or in the uplands adjacent to the bank, localized scour and erosion would likely occur. The degree that localized scour and erosion would occur is exacerbated by the proposed vegetation removal both in the uplands and in the streambeds surrounding the SunCatchers. Neither the effects of vegetation removal, nor the location of the placement of each SunCatcher can be accounted for in the hydrologic and sediment transport modeling completed by Chang Consultants. Nonetheless, these types of effects are likely and observed regularly along dirt roads and stream crossings throughout the arid west. Therefore, it is the Corps determination that the increased erosion at these locations would amount to substantially more indicators of aggradations and degradation within the post-project CAMA assessment areas (e.g. maintenance road crossings would occur on average every 200-feet, which would be approximately 3 or more crossings per CRAM assessment area for the post-project condition). The Corps therefore concludes that the proposed project would effectively reduce the post-project scoring of the Channel Stability metric to an average of "C" for the assessment areas not avoided.

#### Hydrologic Connectivity Metric

Hydrologic connectivity is assessed based on the degree of channel entrenchment, or the inability of flows in a channel to exceed the channel banks. For riverine systems, this metric is calculated as the flood-prone width divided by the bankfull width. As mentioned previously in 3.1.2.2, the conceptual model and field techniques used to assess this metric under the current CRAM Riverine Module (Version 5.02) will require reevaluation for arid streams. Using this CRAM User's Manual, 93% of the assessment areas scored and "A", indicating that channels were generally not entrenched.

The SCCRWP CRAM assessment (Attachment D) found that the concept of "bankfull" as described in the CRAM User's Manual (Collins et al 2008) does not appear to apply to arid ephemeral systems such as those found on the project site. SCCWRP indicated a revision of this metric that considers the connectivity between multiple channels in the floodplain as well as the upstream condition of the contributing watershed may be a more appropriate measure for arid streams. This concept is further supported by the drainage study of the primary ephemeral streams on the site conducted by Stantec (2008) in which 10 and 100-year discharges were modeled. The 10-year modeled cross section could be considered analogous to the current CRAM riverine concept of flood prone area. The cross sectional depth of modeled 10-year discharges was less than 2 feet deep in all of the modeled cross-sections for primary ephemeral streams except one of the four cross-sections for stream G. The estimated cross-sectional widths ranged up to 575 feet and all except 4 of the 21 modeled cross-sections were greater than 100 feet in width.

The indicators of bankfull and floodprone width and depth, as described in the CRAM User's Manual, could not be accurately measured in most of the ephemeral streams on the project site because of the very subtle changes in channel depth (<2 foot) relative to the channel width (>100 feet in many cases). Therefore visual estimates of entrenchment were used to determine scoring for many of the CRAM assessment areas. The shallow, wide nature of most of the onsite ephemeral streams along with the subtle topographic transition to adjacent upland areas indicates that there is little to no entrenchment

Channel entrenchment can also be described as the degree to which the channel is incised. Chang Consultants (2010a and 2010c) assessed stream longitudinal profiles through the project site and the effects of post-project impacts. The currently proposed project incorporates changes recommended by Chang Consultants (2010a) to mitigate sediment transport impacts which could produce localized scour and incision of the ephemeral stream channels throughout the project site. Chang Consultants (2010c) reevaluated the impacts after incorporation of recommended mitigation measures; primarily the removal of all sediment basins and the use of at-grade road crossings throughout the entire project. With these mitigation measures, the changes in channel bed elevation due to general scour were estimated to be less than 1 foot during the modeled 100-year flood and even less during the 10-year event. The general scour analysis provides the best indication of potential for channel entrenchment (channel incision). Additionally, the at-grade road crossings, utility lines, and SunCatchers have been designed to minimally impact the existing morphology of the ephemeral stream channels. Therefore, using similar methods to the SCCRWP CRAM assessment for estimating Hydrologic Connectivity, no significant changes in metric scoring are expected.

#### 4.1.4.3 Physical Structure

## Physical Patch Type Metric

Several components of the proposed project would impact the physical structure of the ephemeral streambeds (See Sections 4.1.1, 4.1.2, and 4.1.3 for details). The construction of the roads and utility trenches would impact approximately 5.6% of the ephemeral streams (Table 24). It is expected that the roads and utility trenches constructed within the project area and would have some impacts on the physical features of the streams, including the physical patch types that are measured for this metric. Roads would be constructed in a grid across the proposed project area and the two utility trenches would run parallel to the rows of SunCatchers including all the streams not designated for avoidance (Map 5 of Attachment B). Heavy equipment including flatbed trailers, cranes, and water trucks would be driving to each SunCatcher location for the installation and/or maintenance of the SunCatchers. Even though there will be no grading done within the streams, there will be grading at stream banks for road crossings and the weight of the vehicles accessing SunCatchers in the streams will create a disruption in the natural physical patch types measured for this metric.

The majority of sites had four patch types observed within the assessment area boundaries (Figure 6). Of the four major patch types observed (secondary channels, hummocks/sedlment mounds, point/in-channel bars, and variegated foreshore), it is projected that the proposed project would remove an average of one of these patch types within primary streams. Since the secondary streams are not as wide as the primary streams assessed within the project area (average active floodplain width of 28.2 m versus 57.4 m for primary streams), it is projected that the proposed project would remove an average of two patch types within the secondary streams. For the avoided streams, there are only a few road and fence crossings and no SunCatchers are placed within these streams (Table 18). No reduction in physical patch types is expected for these areas.

The Physical Patch Type Metric is scored by the number of patch types observed within an assessment area. For the project area, the majority of sites scored a "D" (48%) for this metric, which is the lowest score possible (See section 3.1.2.3 for a summary or Attachment D for a full report). Therefore, the scores for these sites would not change. For primary streams that are not avoided, there were ten sites that scored a "B" or a "C" for this metric. Reducing the patch types by one would decrease 3 sites from a "C" to a "D" and no sites from a "B" to a "C". Since CRAM metric scoring of 6-7 patch types is a "B" and 4-5 patch types is a "C", a reduction of two patch types for secondary streams would reduce all scores of a "B" to a "C" and a "C" to a "D." 16 assessment sites scored a "C" and five sites scored a "B" for structural patch richness for secondary streams. These assessment sites would all be reduced by one letter grade. Scores would not change for assessment sites within primary streams that are avoided.

It should be noted that this is one of the metrics identified in the SCCWRP CRAM report that would require modification for arid, ephemeral stream systems, such as deleting/adding patch types for more accurate scoring of this metric (Attachment D). The initial low scoring of this metric may tend to diminish any differences seen between assessment sites and separate streams because to achieve higher scores the metric requires more patch types than are present within these less complex, ephemeral streams.

## Topographic Complexity Metric

The ephemeral streams in the project area did not contain any elevation changes or "breaks," which is what this metric measures. The proposed project would need to grade stream banks at road crossings in order to create safe slopes for each dirt maintenance road; however, the proposed project would not grade the bottom of the roads within the streams. Therefore, the at grade crossings are not expected to disrupt sediment transfer through the project area (Chang 2010a; Chang 2010b: RMT 2009). All sites scored a "C" or "0" for this metric and it is not expected that the proposed project would interfere with the topographic complexity of the streams except at road crossings. In order for an assessment site to score a "D," there needs to be a man-made change to the channel bottom (Figure 9) which is not projected for this project (Chang 2010a; Chang 2010b; RMT 2009). Therefore, no change is currently projected for this metric from the proposed project. However, it's important to note that this has been estimated using a hydrologic model in which small changes in sediment transport is not expected to be captured. The Corps will reevaluate all of the CRAM metrics, in particular those that could be affected by grading road crossings or removing vegetation once 70-100% project designs are provided by the Applicant.

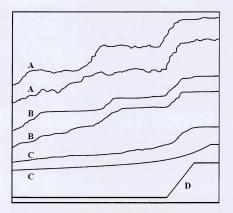


Figure 9. Rating of Topographic Complexity for all Riverine Wetlands.

It should be noted that this is another of the metrics where the current Riverine module does not adapt well to arid ephemeral stream systems (Attachment D). The CRAM report states; "Because aridland streams experience extreme and rapid variations in flood regime, the formation of benches is not a process that is expected to occur. Revised cross-section diagrams for arid stream systems would assist in interpretation of the topographic complexity metric, and potentially generate more variable scores for this metric [Attachment D]." It is expected that this metric will be altered in future CRAM Riverine Module revisons to better assess the topographic complexity observed within ephemeral stream systems when an ephemeral stream CRAM module is designed.

## 4.1.4.4 Biological Structure

Biotic Structure also generally scored low for all assessment areas due to the extreme nature of the Yuha Desert environment. The Biological Structure Attribute measures how plants influence the "quantity, quality, and spatial distribution of water and sediment within wetlands" (Collins et al 2008). Since the diversity and cover of plants is sparse within the project area, the corresponding CRAM scores for Biological Structure are lower than for other Riverine systems.

## Plant Community Composition

The plant community composition metric is composed of three sub-metrics. Projections of CRAM scores for each sub-metric are described below.

#### Number of Plant Layers

Vegetation clearing within ephemeral streams will be limited to construction of roads and utility trenches. There would also be trampling and crushing of vegetation associated with the temporary impact areas for installation of the SunCatchers (Section 4.3.1). Only the taller plant species (ocotillo, mesquite, and smoke tree) would be systematically removed near SunCatchers to allow for movement of the SunCatcher and to prevent shading. However, these species are rarely present in most streams and when present provide sparse cover (usually less than 1% cover). None of the species that would be included in the medium and short plant layers would be specifically targeted during vegetation removal, but the potential effects of shading by the SunCatchers have not yet been evaluated.

It is estimated that approximately 1.6% of vegetation would be cleared within the ephemeral streams for the construction of roads and the utility trenches (Table 24). An additional 10% of vegetation has the potential for trampling or crushing within the temporary impact areas for SunCatcher installation; however, a certain percentage of these plants would remain intact (Table 25). It is currently estimated that approximately 11.6% of the vegetation within the streams is exposed to potential impacts.

The majority of sites assessed had 1-2 plant layers (75 assessment sites) with only nine sites having three plant layers (includes a tall plant layer). Since the ephemeral streams would retain approximately 27% of their plant cover after construction (Table 24) with an additional 10% of vegetation exposed within the temporary impact areas (Table 25), all assessment sites would likely retain 1-2 plant layers and still score as a "C." A tall plant layer was observed in nine of the assessment sites. This included four assessment sites that are located within primary streams proposed for avoidance. It is likely that the vegetation clearing would remove the tall plant layer from the five sites where it was observed outside of the avoided streams. However, the tall plant layer would remain in the primary streams where SunCatchers would not be installation. This would reduce the scores for these sites from a "B" to a "C."

## Number of Co-Dominant Species

As described above, only species that have a very limited distribution within the ephemeral streams on the Site (i.e. those species in the tall layer) would be systematically removed where they interfere with the operation of the SunCatchers. Overall, the 1.6% reduction in plant cover with another 9% exposed to impacts within the temporary impact areas would have the potential to decrease the number of co-dominant species within an assessment site.

47 of the 84 sites scored a "D" (five or less co-dominant species) for this sub-metric and these scores would not change with the implementation of the proposed project. Of the remaining assessment sites, 35 scored a "C" (6-8 co-dominant species) and two scored a "B" (9-11 co-dominant species). Of these scores, seven of the assessment sites that scored a "C" and one that scored a "B" are located in primary streams where the applicant would not install SunCatchers. In order for a species to be considered a co-dominant, it must contain at least 10% of the relative cover within the coverage area of an individual plant layer. If approximately 11.6% of plant cover is at risk for vegetation clearing, trampling, or crushing, it

is expected that up to two co-dominant species would no longer meet the criteria for a codominant for a given assessment site. This would reduce the scores for these assessment sites one letter (i.e., an "B" to a "C" and a "C" to a "D"). This would not apply to the eight assessment sites that are located within the avoided primary streams. These scores would remain the same since there would only be a few perimeter and arterial road crossings (Table 18).

#### Percent Invasion

The number of invasive co-dominant species is assessed as a percentage of the total number of co-dominants. There were several invasive co-dominant species observed within the project area. The Asian mustard was the most commonly observed (40 of the 84 assessment sites). It is well documented that invasive species excel at colonizing areas after ground disturbance as proposed for this project. The Asian mustard is already established on the northern sections of the project area and any other areas of ground disturbance would likely be invaded by this species and others.

The applicant has committed to a Noxious Weed Management Plan for the entire proposed project area (SES 2009b). Certain species, including the Asian mustard, have been identified for eradication wherever encountered within the project area. With ongoing implementation of the Noxious Weed Management Plan, it is anticipated that scores for this sub-metric would not change. If implemented correctly, it is likely that Asian mustard infestations across the project area would decrease and this would have the potential to increase scores in this submetric. However, no projections of increased CRAM scores for the Percent Invasion submetric would be anticipated at this time.

#### Horizontal Interspersion and Zonation

During vegetation clearing for the road system and electric and hydrogen trenching, it is not expected for any one plant community to be targeted above the others. In addition, only approximately one percent of plant cover within the streams would be removed during construction activities and will be confined to defined areas (road construction and trenching activities) (Table 24). However, some of the horizontal structure of the plant communities may be affected by construction activities from the removal of discrete patches of vegetation.

The majority of assessment sites scored a "C" or a "D" for this metric. However, there was some variability in the scores for this metric with 26% of the sites assessed scoring an "A" or "B". Assessment sites that scored a "C" or "D" are already simplistic systems without much variation or interspersion between plant communities and the amount of vegetation clearing proposed would not disrupt plant communities on a large enough scale to reduce sites that scored a "C" to a "D."

However, sites that scored an "A" or a "B" indicate that these sites have greater horizontal blotic structure (i.e. there are larger number of unique plant zones that are interspersed throughout the riparian area). It is likely that the construction of the access roads and installation of the SunCatchers within these sections of the streams would have a greater

impact on this metric. It is projected that the vegetation clearing combined with the potential for trampling and/or crushing of vegetation within the temporary disturbance areas would impact the horizontal structure of the plant communities within these assessment sites and reduce the scores for these systems by one letter (i.e., an "A" to a "B" and a "B" to a "C"). Seven of the sites that scored an "A" or "B" are located within avoided primary streams where there will be no vegetation clearing for the installation of SunCatchers. The scores for these sites would not change. There is one site that scored an "A" that would be reduced and 14 sites that scored a "B" that would be reduced by a letter grade.

## **Vertical Biotic Structure**

The vertical component of biotic structure is assessed by using the number of plant layers calculated in the Plant Community Composition Metric and observing the vertical overlap of the identified plant layers. The ephemeral stream plant systems are by necessity simple with very few plant layers (average of 2 plant layers for the CRAM assessment [Attachment D]) that do not contain much if any vertical structure overall due to the scarcity of water and other necessary resources. The majority of sites scored a "D" for this metric and will not be further impacted by the proposed project. Six assessment sites scored a "C" due to the presence of three plant layers. As discussed above for the Plant Community Composition Metric, it is expected that those sites with three plant layers (includes a tall plant layer) would be reduced to two plant layers through vegetation clearing. Two of these sites are located within the primary streams that where no SunCatchers would be installed. These two sites would retain their tall plant layer and their Vertical Biotic Structure scores would not be reduced. The remaining four sites would have their scores for the Vertical Biotic Structure reduced to a "D" as defined in the CRAM manual (Collins et al 2008).

## 4.1.4.5 Summary of Impacts to Stream Condition

At this time, the Corps has completed only a cursory evaluation of the CRAM scores in order to roughly estimate direct and indirect effects of the proposed 709MW project. The Corps will expand upon this evaluation once 70-100% project designs are provided by the Applicant. The final evaluation and estimate of indirect effects will be calculated for avoided streams (e.g. I, K, C, E, G, and H) and impacted streams. As described above, the Corps estimates that the scores for avoided and unavoided streams will be reduced most significantly for the Buffer and Landscape Attribute lowering from an average of "A" to the lowest score possible which is "D". Changes in the Hydrology Attribute will be less severe. The average baseline score for the Hydrologic Attribute is "A" and this would not be reduced for avoided streams (e.g. I, K, C, E, G, and H). The Hydrology Attribute would be reduced for one of the three metrics from "A" to "B". The Physical and Biological Attributes scored the lowest for the baseline due to the absence of structure typical in the desert environment compared to coastal stream systems for which CRAM is currently most applicable. The scores for both attributes range from the low end of "C" to "D". These would likely all be lowered to "D" for impacted streams due to maintenance roads and removal of vegetation and remain unchanged for avoided streams (e.g. I, K, C, E, G, and H).

Therefore, it's preliminarily estimated that the CRAM there would be a 15-20% functional loss for avoided streams due to impacts to the Buffer and Landscape Attribute and approximately a 30-40% functional loss in impacted streams due to effects of roads, SunCatchers, and

vegetation removal on three of the four attributes (e.g. Hydrology Attribute will unlikely be affected to a measurable degree). The reduction at the proposed project site will be mitigated by improving the functions and services at the mitigation site at an appropriate acreage ratio to be determined by the Corps during final analysis.

## 4.2 Physical and Chemical Impacts

#### 4.2.1 Physical Substrate Impacts

### Construction and Operation Impacts

Construction of the project is expected to take approximately 40 months to complete. Construction would include soil excavation, clearing, grading, installation of solar disks, construction of the Main Services Complex, roads, utilities, water pipeline, substation, and other ancillary features. During these activities there would be both permanent and temporary impacts to the physical substrate of WUS from dredge and fill activities and construction of permanent facilities. Of these impacts, only the installation of SunCatcher pedestals into streams would penetrate into the substrate of WUS (to a depth beyond sand layers in streams). SunCatcher pedestals would be vibrated into the ground to approximately 17 feet in depth at 3,248 locations resulting in 0.3 acre of disturbance to WUS. This small disturbance is not expected to fracture shallow substrate layers that could result in cross mixing between shallow aquifers or result in drainage of perched aquifers. In fact, the shallowest known depth to groundwater on the project site is 45 feet but is in the 100-300 feet depth range for most of the site.

Other potential impacts to the surface substrate of WUS would be from periodic vehicle crossings of WUS via at-grade, unsurfaced crossings. Chang (2010a) determined that impacts to site geomorphology, as well as downstream morphology, would be insignificant (and in witness testimony to the CEC). As detailed in the SA/DEIS and in the Final EIS, the project is expected to generate short-term increases in erosion during construction.

## Mitigation Measures

In accordance with the Final EIS, Soil&Water-1 and Soil&Water-3, the Applicant has prepared Drainage, Erosion and Sediment Control Plan (DESCP) and an Industrial Facility SWPPP, respectively which describes a series of BMPs intended to reduce erosion during construction and operation of the facility. Multiple additional conditions of certification to minimize erosion are also detailed in the SA/DEIS and Final EIS. Upon review of these draft documents required by the Final EIS, or upon further evaluation of recent sediment transport or hydrology studies, or modification of the project design features, the Corps may incorporate Special Conditions of the IP that further mitigate these potential affects.

## 4.2.2 Water Circulation, Fluctuation, and Salinity Impacts

## Construction and Operational Impacts

SunCatcher foundation poles in the flow path would create local areas of flow turbulence, resulting in local stream scour around the foundation poles. Scour such as this occurs on bridge piers, resulting in the need to bury bridge piers to a depth below the depth of scour to ensure stability. Chang (2010b) modeled the extent of scour for a SunCatcher pedestal during a 100-year flood event and determined the extent of scouring was a 21.9 square foot circle around the pedestal. Table 23 includes the indirect impacts of pedestal scouring during a 100-year flood event for the project site. Because project area streams are generally very wide, flows are typically very shallow and of low velocity. Flow velocities and depths for the 100-year flood as estimated from the HEC-RAS modeling are fairly uniform across the site. Flow depths on the site average approximately 1.2 feet, with flow velocities approximately 3 feer second (Stantec Consulting, Inc. 2008), HydroCAD (RMT, Inc. 2009), and FLUVIAL-12 (CHANG 2010a). Chang's sediment modeling study (2010a) and subsequent testimony submitted to the CEC showed that the project will not change hydrology, sediment flow or delivery towards areas downstream from the project site, or change stream morphology on or off site.

#### Mitigation Measures

Final EIS Mitigation Measures Soil&Water-7, Storm Water Damage Monitoring and Response Plan, is proposed to prevent soil surface damage and contamination resulting from sunCatcher instability in all areas. Condition of Certification Soil&Water-1, Drainage Erosion and Sedimentation Control Plan, would also mitigate impacts associated with stream scour and SunCatcher instability, as well as ensuring no substantial increase in off-site flooding potential. Condition of Certification Soil&Water-1 and Soil&Water-7 are designed to ensure hydrology and flooding impacts are kept to less than significant levels. Upon review of these draft documents required by the Final EIS, or upon further evaluation of recent sediment transport or hydrology studies, modification of the project design features, or communication with the RWQCB, the Corps may incorporate Special Conditions of the IP that further mitigate these potential affects.

## 4.2.3 Suspended Particulate/Turbidity Impacts

## Construction and Operation Impacts

Stormwater runoff from the site during construction could include excess sediment from construction activities. Chang's sediment modeling study (2010a) showed that with the sediment basins removed from the site plan, that the project will not change sediment flow or delivery towards areas downstream from the project site. Further, as the project will not change flow or sediment flow to off-site areas, there should be no impacts to off-site fluvial morphology.

## Mitigation Measures

Per the Final EIS, site construction would require an *Industrial Facility SWPPP*, Soil&Water-3 which would specify BMPs that would minimize mobilization of sediments and soils on-site and eliminate or reduce non-stormwater discharges to WUS. Mitigation Measures contained in the

Final EIS Soil&Water-1, Drainage, Erosion and Sediment Control Plan (DESCP), and Soil&Water-5, NPDES General Permit for Construction Activity, would ensure adequate control of construction stormwater pollutants.

Final EIS Mitigation Measures Soil&Water-1, Drainage, Erosion and Sediment Control Plan (DESCP), and Soil&Water-5, NPDES General Permit for Construction Activity, would ensure minimization of operations-related stormwater runoff contaminants and mitigate to a level less than significant. Upon review of these draft documents required by the Final EIS, or upon further evaluation of recent sediment transport or hydrology studies, modification of the project design features, or communication with the RWQCB, the Corps may incorporate Special Conditions of the IP that further mitigate these potential affects.

#### 4.2.4 Contaminant Impacts

## Construction and Operation Impacts

During construction and operation of the IVSP, surface water quality could be affected through the introduction of pollutants such as excess trash, oils, solvents, paints, cleaners, asphaltic emulsions, mortar mix, spilled fuel, vehicle fluids, and other construction or industrial site-related contaminants.

Runoff from the Main Services Complex would be directed into a one-acre stormwater retention pond. Runoff-borne contaminants from the Main Services Complex would be discharged into the retention basin, rather than being discharged into the natural channel system. The project would include an oil/water interceptor to collect oil and other contaminants from the Main Services Complex. Oil collected from this interceptor would be transported to a certified recycling facility.

#### Mitigation Measures

The Applicant proposes to collect and remove construction waste, including hazardous wastes, according to a regular schedule. Site construction would adhere to the required SWPPP Conditions of Certification Soil&Water-1 and Soil&Water-5 would ensure adequate control of construction stormwater pollutants.

Mitigation Measures in the Final EIS Soil&Water-1 strive to ensure no adverse water quality or soils impact from mirror washing. Condition of Certification Soil&Water-1 and Soil&Water-5 would ensure minimization of operations-related stormwater runoff contaminants and mitigate to a level less than significant in all areas. Upon review of these draft documents required by the Final EIS, or upon further evaluation of recent sediment transport or hydrology studies, modification of the project design features, or communication with the RWQCB, the Corps may incorporate Special Conditions of the IP that further mitigate these potential affects.

## 4.3 Biological Impacts

## 4.3.1 Impacts to the Vegetation Communities

The predominant vegetation community on-site including within the streams is Sonoran creosote bush scrub. Vegetation trimming within the ephemeral streams will be limited to the occasional removal of shrubs that occur within the maintenance, perimeter, and arterial road crossings. Some trampling or uprooting of vegetation is expected to occur during trenching for the hydrogen and electrical lines. Vegetation clearing in the streams will be closely monitored because the highest density of vegetation occurs within the streams and removal would likely increase the potential for erosion and sediment transport to downstream reaches. The applicant has committed to not mow, trim, or otherwise disturb vegetation, nor place SunCatchers within streams I, K, C. H, and the areas of streams E and G south of the transmission line corridor. In addition, roads within these streams have been minimizes to only Perimeter and Arterial Road crossings. To accommodate the FTHL movement through the site, the Applicant has proposed to maintain 200 foot corridors in streams E and G north of the transmission line corridor (Map 5 of Attachment B) where no SunCatchers will be placed, but where maintenance roads may still be needed. The number of maintenance roads within the 200 foot wide corridors is extensive and will further be evaluated, and likely reduced, by the Corps when revised project design maps and vegetation clearing plans are developed.

Complete and permanent vegetation removal is expected for the construction and operation of roads within the streams, uplands. Complete temporarily vegetation removal would occur in order to trench and install the utilities (24 inches wide for electric/12-inches wide for hydrogen). A total of 14.3 acres of vegetation is estimated to be cleared for both temporary and construction related impacts within the streams for the entire project area; representing approximately 1.6 percent of site vegetation cover in WUS. However, total vegetation clearing across the project site including the uplands is approximately 135 acres.

Table 24 calculates the acres of vegetation that would be removed, both temporarily and permanently during the construction and maintenance of the road system and during construction of the electric and hydrogen trenches within ephemeral streams.

Table 24. Estimated vegetation removal by stream for construction of the road system and the electric and hydrogen trenches.

Label	Size of Drainages	% Overall Plant Cover	Acres of Disturbance	% of Drainage Impacte d	Estimated Acres of Vegetation Cleared <sup>1</sup>	% of Vegetation Remaining	Decrease in % Cover
A	25	22%	1.80	7.2%	0.40	20%	1.6%
В	10	22%	0.93	9.3%	0.20	20%	2.0%
С	40	22%	0.42	1.0%	0.09	22%	0.2%
Secondary C Streams	44	34%	3.04	6.9%	1.04	32%	2.4%
D	75	22%	5.88	7.8%	1.29	20%	1.7%
Secondary D Streams	62	34%	4.48	7.2%	1.52	32%	2.5%
E	199	22%	13.33	6.7%	2.93	21%	1.5%
Secondary E Streams	37	34%	2.15	5.8%	0.73	32%	2.0%
F	104	22%	7.21	6.9%	1.59	20%	1.5%
Secondary F Streams	24	34%	1.65	6.9%	0.56	32%	2.3%
G	115	22%	3.96	3.4%	0.87	21%	0.8%
Secondary G Streams	37	34%	2.39	6.5%	0.81	32%	2.2%
Н	7	22%	0.0	0.0%	0.00	22%	0.0%
1	24	22%	0.0	0.0%	0.00	22%	0.0%
J	11	34%	0.90	8.2%	0.31	31%	2.8%
K	37	22%	0.54	1.5%	0.12	22%	0.3%
Secondary K Streams	8	34%	0.56	7.0%	0.19	32%	2.4%
SI	22	34%	1.81	8.2%	0.62	31%	2.8%
Total	881	28%	51.06	5.8%	14.30	26%	1.6%

<sup>&</sup>lt;sup>1</sup> – Estimated acres of vegetation cleared includes the width of the roads and the width of the utility and hydrogen trenches (3 feet).

Direct, but temporary impacts to vegetation is also expected through trampling and/or crushing during the installation of the SunCatchers and the construction of the two utility trenches (electrical and hydrogen) from heavy equipment operation in streams. It is estimated that a forty foot radius around each SunCatcher would be impacted by vehicle and equipment movement during installation of SunCatchers and an additional temporary

disturbance from vehicle/equipment overland travel from the maintenance road network to the 40 foot radius impact area around individual SunCatchers.

Construction activities that would occur within the 40 foot radius temporary impact area are detailed as follows:

- Installation begins with delivery of the SunCatcher pedestal by a flatbed truck via the maintenance road to individual SunCatcher locations.
- The pedestal is then unloaded and put in position with a forklift. The installation is
  accomplished using a track crane fitted with a vibratory pile driving system. The crane
  is capable of picking up the pedestal off the ground, aligning the pedestal over the
  insertion point and vibrating the pedestal into the ground. The entire pedestal process
  takes 20 to 30 minutes.
- There are three other operations requiring man lifts and cranes:; (1) the azimuth
  drives which are mounted on top of the pedestal: (2) the dish structure—which is
  mounted on the azimuth drive, and (3) the final stage is to mount and connect the
  Power Conversion Unit to the Dish Structure and the hydrogen lines and electrical
  connections which are mounted on the pedestals.
- The final stages require the use of a crane and the delivery of the SunCatcher apparatus on a flatbed truck.

All of these activities would occur within the 40 foot radius around the SunCatcher pedestal. It is expected that the activities would be short-term but of high intensity and would result in the trampling and crushing of vegetation. Because of the overlap of this 40 foot radius impact area between SunCatchers, all trenching activities for utilities would fall within this temporary impact area.

As shown in Table 25, approximately 332 acres of temporary construction activities would occur in WUS and another 2, 559 acres outside of the WUS in the uplands. Based on an average vegetation cover of 22% in primary streams and 34% in secondary streams, approximately 93.0 acres of vegetation within the streams may be damaged or destroyed during temporary construction activities.

Indirect impacts associated with vegetation clearing include weed infestation from permanent and temporary disturbed areas, and the potential destruction of natural soil binding and stabilization structures of live root systems from both temporary construction-related activities and operational activities. These disturbances can have widespread long lasting effects on the surrounding landscape and in particular downstream reaches if not mitigated adequately. If unmanaged, weeds will spread from the matrix of dirt maintenance roads and other facilities into the avoided uplands and streams to compete with native desert vegetation for water and nutrients.

Table 25. Estimated temporary impacts to vegetation by trampling during installation of the SunCatchers and construction of the electric and hydrogen trenches.

Label	Label Size of Drainage Plant Cove		Acres within the Temporary Disturbance Zone	Potential Indirect Impacts to Vegetation <sup>1</sup>
Α	25	22%	15.7	3.5
В	10	22%	5.6	1.2
С	40	22%	0.0	0.0
Secondary C Streams	44	34%	24.9	8.5
D	75	22%	46.8	10.3
Secondary D Streams	62	34%	33.2	11.3
E	199	22%	70.6	15.5
Secondary E Streams			13.3	4.5
F	104	22%	47.8	10.5
Secondary F Streams	24	34%	11.6	3.9
G	115	22%	21.2	4.7
Secondary G Streams	37	34%	16.3	5.5
Н	7	22%	0.1	0.0
1	24	22%	0.0	0.0
J	11	34%	6.4	2.2
К	37	22%	0.1	0.0
Secondary K Streams	8	34%	4.3	1.5
SI	22	34%	14.1	4.8
Total	881	28%	332.0	93.0

 $<sup>^{1}</sup>$  – Acres of vegetation exposed to trampling and/or crushing was estimated using the acres of the temporary disturbance zones multiplied by the average plant cover for primary and secondary streams.

#### Mitigation Measures

The SA/DEIS and Final EIS propose numerous measures to mitigate the direct and indirect impacts to biological resources. Specific to vegetation, Bio-7, Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), Bio-8, Construction-& Operation-Related Minimization Measures, Bio-10, Mitigation for FTHL, Bio-17, Mitigation for CDFG Jurisdictional Streambeds and Corps Jurisdictional Waters of the U.S., and Bio-18, Noxious Weed Management Plan. Combined these measures will allow only the minimum vegetation clearing and disturbance necessary to construct the proposed project, require the management of noxious weeds during construction and operational of the plant, and require mitigation for all unavoidable impacts to CDFG and Corps WUS.

In addition, the Applicant and the Corps are working together on the development of an onsite revegetation plan for temporary impact areas, as well as an off-site mitigation plan in accordance with the Mitigation Rule for unavoidable direct, indirect, and cumulative impacts (see section 5.0). Any temporary impacts to Corps WUS associated with trenching or installation of SunCatchers would require restoration of the stream and contributing uplands within the buffer areas to the pre-existing elevations, contours, and vegetation communities immediately following construction. Bio-17, Mitigation for CDFG Jurisdictional Streambeds and Corps Jurisdictional Waters of the U.S., describes the current approach of the Corps in mitigating unavoidable impacts through requiring mitigation in the form of enhancement and rehabilitation of Carrizo Creek and marsh on the Anza Borrego State Park. Mitigation ratios would likely range from 3:1 to 5:1 based on the final evaluation of direct and indirect impacts to the functions and services on-site relative to the benefit of the enhancement and rehabilitation activities on Carrizo Creek. At this time, it is estimated that the required mitigation for PBS and Corps jurisdictional WUS would be similar, on the order of 250 acres of enhancement and rehabilitation in Carrizo Creek and marsh, known foraging areas for the PRS.

## 4.3.2 Threatened and Endangered Animals Impacts

#### Flat-tailed horn lizard

Impacts associated with the Proposed Action on threatened and endangered species is discussed in detail in Section C.2 of the SA/DEIS, in Chapter 4.3 the Final EIS, and the Biological Assessment attached to the Final EIS.

It has been determined that the project would likely adversely affect the flat-tailed horned lizard. Approximately 6,500 acres of FTHL suitable habitat would be directly affected by the project. This represents 0.66% of the estimated amount (400,000 hectares) of suitable habitat occurring in California. As described below, the SA/DEIS and Final EIS states the Conditions of Certification and Mitigation Measures, respectively the Applicant proposes to reduce and minimize impacts to the FTHL. The preliminary LEDPA would provide corridors for FTHL to traverse the proposed project site. Streams C, I, and K would only have crossings for the Perimeter and Arterial Roads and the perimeter fence (Table 18) with no SunCatchers or maintenance roads built within the stream (Map 5 of Attachment B). These streams traverse the entire site from I-8 to the south to Evan Hewes Highway and the railroad dike to the north. The culvert under I-8 for wash C allows for FTHL movement; however, the culverts

underneath I-8 currently restrict movement through streams I and K (Figure 10). These culverts may be further modified to allow for FTHL movement, but may not be a mitigation measure of this project. The at-grade crossings on the project site would not impede FTHL travel from south to north.

Streams E and G on the eastern section of the project would not have SunCatchers or maintenance roads in the southern portion of the project area up to the existing transmission line road. In addition, TSNA has agreed to provide 200 foot corridors that are free of SunCatchers along the northern portion of the streams (reduction of 228 SunCatchers in WUS). The corridor is expected to provide FTHL with the ability to traverse the entire eastern portion of the project area with only a few road crossings; however, at this time there would be 23 maintenance road crossings of Stream E and 8 road crossings of Stream G. The maintenance roads within the streams throughout the site would be used approximately once a month to wash and maintain the SunCatchers (Table 22). This would reduce the potential for FTHL mortality by vehicles and allow the FTHL relatively undisturbed streams for their movement. The number of these roads may change with further analysis and consultation between the federal agencies (e.g. USFWS, BLM and Corps) prior to finalizing the 404(b)(1) analysis.

The culverts under I-8 restrict movement from the Yuha Desert FTHL Management Area located south of the project site (Figure 10). While providing these FTHL transportation corridors on the eastern and western portions of the project site would not mitigate the impacts to the remaining acres of potential FTHL habitat impacted within the project area, it would allow the FTHL relatively unimpeded passageways through the project area and allow some limited movement between the two FTHL Management Areas (Yuha Desert and West Mesa). The avoidance measures would preserve 242 acres of desert streams and potential FTHL habitat. As stated below, it is expected that the applicant would still mitigate the loss of FTHL habitat as defined by the FTHL Management Strategy and outlined in the Section C.2 of the SA/DEIS and in Bio-10 of the Final EIS.

## Mitigation Measures

The full list of mitigation measures for biological resources is listed on pages C.2-74 through C.2-100 of the SA/DEIS and in section 4.3 of the Final EIS. There are three Mitigation Measure specifically designed for the FTHL; Mitigation Measure Bio-9, Construction Related Avoidance and Minimization Measures for the FTHL, Bio-10, Mitigation for the FTHL, and Bio-11, FTHL Designative Biologist. These measures would minimize and/or mitigate for impacts to FTHL populations and habitat through implementing pre-construction surveys and removal of FTHLs from construction areas, providing the regulatory agencies reasonable access and an experienced biological monitor, and by acquiring compensation lands equal to the acreage of the project site within the FTHL Management Area, which is approximately 6,527 acres of lands.

#### Peninsular Bighorn Sheep

A group of five female/yearling Peninsular bighorn sheep (PBS) were observed in an ephemeral stream on the western half of the project site in March 2009. Although this species could use the IVSP site as foraging habitat, data collected for this project suggests that use of

the project site by PBS is transitory and likely a result of drought conditions. As the IVSP is located on flat terrain, sheep entering the area are far from escape habitat and would be in a highly stressed state. This could put them at great risk as the project site is already surrounded by busy highways and the railroad. Nonetheless, in preliminary consultation with the USFWS, it has been determined that the project site provides some forage and may possibly function as a corridor for PBS movement. The USFWS and BLM biologists agree that the observation of PBS on the site in spring 2009 was an unusual occurrence because no known lambing sites or water sites are known near the project site and no other PBS occurrences been documented in the vicinity.

The USFWS is in the process of preparing a Biological Opinion (BO) and it is anticipated that the final outcome of which will be that the IVSP may affect, but is unlikely to adversely affect PBS. The Proposed Project would not adversely affect PBS Designated Critical Habitat. Potential incidental take would likely be in the form of harassment and no mortality of PBS is anticipated. Subsequently, the USFWS anticipates requiring mitigation in the form of enhancement or restoration for the estimated 250 acres foraging habitat on the project site. Mitigation for this foraging habitat would be consistent and overlapping with the Corps proposed mitigation approach at Carrizo Creek and marsh described previously.

### Mitigation Measures

Condition of Certification of the SA/DEIS and Final EIS Mitigation Measure Bio-8, Construction and Operation Minimization Measures, requires that a perimeter fence and gates to prevent wildlife access to the site be constructed. The measure also requires that construction equipment is contained on-site excavated areas are covered, and that wildlife escape ramps in the excavated areas should be constructed in the event that sheep wander on-site. Mitigation Measure BIO-17, Mitigation of CDFG Streambeds and Corps Waters of the U.S. would include mitigating impacts to Corps jurisdictional WUS through the enhancement of Carrizo Creek and Marsh on Anza Borrego State Parks in known PBS territory. Mitigation at Carrizo Creek and the adjacent marsh consisting of riparian enhancement and creation expected to benefit PBS by restoring historical forage areas that have been lost due to tamarisk invasion. Enhancement efforts are expected to remove tamarisk and restore the drainage and marsh to a condition of native forage for PBS. With implementation of the identified Mitigation Measures and mitigation required by the USFWS, the IVSP is not likely to adversely affect special-status mammals.

#### Other sensitive species

The Proposed Project may affect, but is unlikely to adversely affect the Yuma clapper rail. This determination is based on the potential that marginal habitat downstream of the SWWTF would be degraded from the small reduction in flows. Focused surveys along the New River near the SWWTF for the Yuma clapper rail and for burrowing owl, California black rail, least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo have all been negative in 2010.

Figure 10. Culverts on the perimeter of the project site and the ability of FTHL to cross them.

4.3.3 Fish, Crustaceans, Mollusks, and Other Aquatic Organisms in the Food

No fish, crustaceans, mollusks, or other aquatic organisms were observed within the project site. Therefore, no impacts are expected to these organisms from the Proposed Project. The SWWTF expansion would not fill any wetlands along the New River. During operation of the project, a small portion of the effluent from the SWWTF would be used for the project (up to 33.7 acre feet). The small reduction in effluent discharge is not anticipated to impact the small wetland located immediately downstream of the SWWTF discharge point, as this wetland is also fed by agricultural return flow. The minimal decrease in flows to the New River (estimated to represent between 0.03% to 0.16% of the total flow in the New River) is not anticipated to a have a measurable impact on the New River or the Salton Sea.

### 4.3.4 Other Wildlife

Impacts to other BLM or state listed wildlife are discussed in section C.2 of the SA/DEIS and 4.3 of the Final EIS. The full list of mitigation measures for biological resources is listed on pages C.2-74 through C.2-100 of the SA/DEIS.

The LEDPA would reduce permanent impacts to streams within the project area by 138.4 acres compared to the original proposed project (Tables 3 and 5). In addition, the LEDPA would not place SunCatchers or associated maintenance roads in streams C, I, and K and the southern portions of streams E and G (Map 5 of Attachment B). The only impacts to these sections are perpendicular arterial or perimeter road crossings and the perimeter fence (Table 18). This would provide habitat for the numerous animal species that utilize the denser wash vegetation and provide corridors of movement through the project area. In addition, 200-foot wide corridor without SunCatchers through the northern portions of streams E and G would provide corridors through the eastern half of the project area.

### 4.3.5 Special Aquatic Sites

The proposed project site does not include any special aquatic sites.

# 4.4 Impacts on Human Use Characteristics

4.4.1 Municipal and Private Water Supplies

None.

4.4.2 Recreational and Commercial Fisheries

None.

4,4,3 Water-Related Recreation

None.

#### 4.4.4 Aesthetics

See the Visual Resources section (C.13) of the SA/DEIS for a detailed discussion of the Proposed Action's impacts to the viewshed.

# 4.4.5 Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites and Similar Preserves

See the Land Use, Recreation, and Wilderness section of the SA/DEIS and Final EIS for a detailed description of the impacts analysis.

### 4.5 Determination of Cumulative Effects on WUS

Cumulative effects associated with the Proposed Action are described in detail in SSA and in the Final EIS. The SSA and Final EIS found that there would be no cumulative impacts to Air Quality, Facility Design, Geology, Paleontology, and Minerals, Hazardous Materials, Noise, Public Health and Safety, Socioeconomics and Environmental Justice, Traffic and Transportation, Transmission Line Safety/Nuisance, Transmission System Engineering, Waste Management, and Worker Safety and Fire Protection. Please see the SSA and Final EIS for detailed analysis on these environmental parameters. The SSA and Final EIS found that cumulative impacts were significant and unavoidable following mitigation for Land Use and Recreation and Visual Resources. The SSA final determination for a Biological Resources and Hydrology, Soils and Water Resources also determined that the proposed project would result in significant and unavoidable cumulative impacts following mitigation; however, this analysis referred to the 750MW alternative and impacts to the FTHL and WUS have been significantly reduced. The 750MW Alternative included 165 acres of impacts of WUS which have been reduced to 38 acres of impacts to WUS through avoidance and minimization measures resulting in the 709MW alternative. The Final EIS analyzed the 709MW alternative and found the impacts to FTHL and WUS to be acceptable with implementation of Mitigation Measures (see below).

The Corps geographic scope of analysis for impacts to jurisdictional WUS is the three HUC 12 watersheds to which the IVSP contributes hydrology, sediment, and biological resource values. These are Lower Coyote, Plaster City, and Middle Coyote watershed, which are all part of the southwestern part of the HUC 8 Salton Sea Watershed. As described previously, mitigation that the Corps will require for unavoidable impacts to WUS would occur in Carrizo Creek, which is located in the HUC 8 Carrizo Creek Watershed directly to the north of the IVSP, draining into San Felipe Creek and then to the Salton Sea. Enhancement and rehabilitation of Carrizo Creek and marsh at this location will mitigate the functions, services, and acreage of indirect and direct impacts to WUS and restore known PBS historic foraging resources.

A search of the Corps database produced no completed permit actions within the geographic scope of the Corps analysis. These three HUC 8 watersheds are essentially open space with some detrimental, but unregulated activities on-going including site scraping on a property south of the southwest corner of the project site and off-road vehicle uses. It is assumed that the development of Plaster City, Evan Hewes Hwy, the railroad, and I-8 were developed either prior to the CWA, activities were unregulated, or activities were minor in nature and permitted through the Corps Nationwide Permit Program for mining/industrial/commercial facilities and linear transportation projects, respectively. The Corps then expanded the database search beyond the three HUC 8 watershed to Imperial County and 25 regulatory actions completed, two of which were Standard Individual Permits (SIP). These permit actions across Imperial County amounted to approximately 136 acres of impacts to WUS. On-going

and reasonably foreseeable permit actions (e.g. those actively engaging the Corps in preapplication meetings) with the Corps are shown in Table 26.

Table 26. Corps On-Going and Reasonably Foreseeable Projects

File Number	Project Name	Status	Location	Impact acreage	Mitigation acreage
2010-00024	Black Rock Geothermal Plant	Permit pending	33.04851°N,- 115.7375°W	-0.15 acre ephemeral stream	TBD
2010-00140	Wind Zero Police Academy	Pre- application	32.72942°N, -115.9485°W	TBD	TBD
2009-00445	Calexico Clean-up	Permit issued July 24, 2009	32.67782°N, -115.5428°W	Temporary 2.0 acre of wetland	Re- vegetate 2.0 acre of wetland
2009-00569	Brawley Closure	Pre- application	32.99861°N, -115.5398°W	approx. 1600 linear feet of New River	TBD
2009-00141	Calexico New River Project (Underground New River)	Pre- application	From 32.665°N, -115.499°W To: 32.6789°N, -115.5424W°	3 miles of New River	TBD
2010-00643	Bridge Replacements County of Imperial Brockman Road	Pre- application	32.7375°N, -115.6378°W	>0.10 acre New river	TBD
	Lyons Road		32.7169°N,- 115.6042°W	>0.10 acre New river	TBD
	Drew Road		32.7616°N,- 115.6903°W	>0.10 acre New river	TBD
	Worthington Road		32.8471°N,- 115.6826°W	>0.10 acre New river	TBD
	Evan Hewes Highway		32.7910°N,- 115.7017°W	>0.10 acre New river	TBD
	Hetzel Road Bridge		32.8218°N, -115.7296°W	>0.10 acre Salt Creek	TBD
	Brockman Road		32.7001°N,- 115.6398°W	>0.10 acre JD Canal	TBD
	Westmorland Road		32.8422°N, - 115.7378°W	>0.10 acre JD Canal	TBD
2010-00645	Observational Deck Sonny Bono	Pre- application	33.0829°N, - 115.7092°W	TBD	TBD
2010-00543	Habitat Pond	Pre-	33.183°N,	TBD	TBD

	Restoration Sonny Bono	application	-115.6228°W		
2010-00142	DFG Habitat Ponds 2400 acres	Pre- application	New River mouth: 33.1022°N, - 115.6869°W and/or Alamo River mouth: 33.1841°N, - 115.5976°W	TBD	TBD
2010-00391	Anza Borrego Carrizo Creek ILF	Pre- application	32.8477°N, -116.1974°W	TBD	TBD
2010-00461	Superstition Solar	Pre- application	33.0628°N, -115.756°W	TBD	TBD
2007-00567	Imperial Solar Energy South	Pre- application	32.65879°N, -115.6611°W	TBD	TBD
2000-00570	Imperial Solar Energy West	Pre- application	32.77145°N, -115.7834°W	TBD	TBD
2007-00704	Sunrise Powerlink	Permit Pending	Linear: from Suncrest Substation in San Diego County to Imperial Valley Substation in Imperial County	Approx. 2.86 acres of permanent impacts (0.078 wetland) and 7.28 acres of temporary impacts to waters of the U.S.	TBD
2009-00971	Ocotillo Express Wind Energy	Pre- application	32.743°N, -116.054°W	TBD	TBD
2009-00969	Tule Wind	Pre- application	32.72840°N, -116.31°W	Approx. 0.15 acre of ephemeral stream	TBD

Per the Final EIS, the proposed project would be expected to contribute only a small amount to the possible short term cumulative effects related to biological resources because the proposed mitigation measures described below would minimize and offset the projects contributions to the cumulative loss of habitat for native plant communities and wildlife, including special-status species. Mitigation Measure BIO-10 requires the applicant to pay for the acquisition of 6,619.9 ac of suitable habitat for FTHL. This habitat would be connected to other suitable habitat for other special-status species, and would offset any habitat loss

associated with the project. In addition, the proposed project design has avoided all or most of six of the ten primary streams (e.g. I, K, C, E, G, and H) and avoiding a 200-foot wide corridor within the two primary streams not completely avoided (e.g. E and G) for the FTHL. This avoidance allows the FTHL to continue to utilize the project site to some degree. Cumulative loss of foraging habitat for PBS is also expected to be insubstantial and will be mitigated through the enhancement and rehabilitation of equal acreage of foraging habitat within known PBS populations and movement corridors (e.g. Carrizo Creek as described above). The Final EIS further includes a host of measures designed to mitigate the direct, indirect, and cumulative effects of the proposed project on biological resources. These include Mitigation Measures BIO-16 requires protection and passive relocation for burrowing owls and BiO-12 (the Raven Management and Monitoring Plan) includes measures that would address the cumulative regional increases in raven predation on FTHL. Mitigation Measure BIO-19 requires pre-construction surveys and a special-status plant protection plan. Mitigation Measure BIO-17 requires that the effects to the desert streams be mitigated by offsetting cumulative losses to waters of the U.S. and CDFG jurisdictional streambeds also designed to mitigate the losses to PBS foraging habitat. The contribution of the IVS project to cumulative effects will be less than considerable with appropriate levels of compensatory mitigation, when Mitigation Measures BIO-10 and BIO-17 are applied. Similarly, the contribution of the IVS project to the combined effect of the cumulative projects in the FTHL habitat can be mitigated with Mitigation Measures BIO-10 and BIO-17.

The proposed project would be located in the Yuha Desert of Imperial County in an area characterized by braided, erosive stream channels, flash flooding, alluvial fan conditions, low rainfall, sparse vegetation, and the potential for wind erosion. There are no perennial or intermittent drainages on the IVSP site. Hydrology and the water quality of surface runoff flows would be dependent on materials picked up on the ground surface, which is currently natural desert. The downstream disposition of surface runoff from the site is the desert area west of the Westside Main Canal, possibly the Westside Main Canal itself, local drainage and irrigation ditches west of the Westside Main Canal, the New River, and eventually the Salton Sea. Cumulative impacts to water quality are not anticipated because of the low amount of rainfall received in the region and the irregularity of subsequent flow events, the lack of impervious surfaces in the watersheds, and the type of proposed project (e.g. limited imperious surfaces). Mitigation Measures within the Final EIS have been designed to limit the potential effects on hydrology and water quality and ensure that the proposed project complies with applicable regulatory requirements for both construction and post-development surface runoff water quality. These regulatory requirements not only apply to the proposed project, but all future projects. Therefore, cumulative impacts on surface water quality of receiving waters from the proposed project and future alternative energy projects in the watershed would be addressed through compliance with the applicable regulatory requirements that are intended to be protective of beneficial uses of the receiving waters. In addition, Mitigation Measures in the Final EIS include Soil&Water-1, Development of a Drainage, Erosion and Sediment Control Plan (DESCP), which would include monitoring and rectifying any observed problems during operation; Soil&Water-5, NPDES General Permit for Construction Activity, would ensure adequate control of construction stormwater pollutants; and Soil&Water-3. Industrial Facility SWPPP, which would specify BMPs that would minimize mobilization of sediments and soils on-site and eliminate or reduce non-stormwater discharges to WUS.

## 5.0 Mitigation Proposed by the Applicant

For unavoidable impacts to WUS, the Applicant proposes to replace the functional losses through active wetlands and riparian habitat enhancement, rehabilitation, and preservation. The permanent impacts to WUS (e.g., ephemeral streams) are 38.2 acres, temporary impacts from the utility trenches are 14.0 acres, indirect impacts due to scour are estimated at 1.64 acres, and temporary disturbances have the potential to disturb up to 93.0 acres of vegetation within the ephemeral streams. Direct and indirect impacts associated with construction and operation of the project on stream condition have been estimated using CRAM as previously described in Section 4.1.4. This loss of stream condition has not been converted into acreage losses directly. Instead, the loss of stream condition will be mitigated by comparing the on-site baseline vs. post-project conditions with the mitigation site baseline vs. post-mitigation conditions. Final mitigation requirements will be calculated following a more complete evaluation of the CRAM scores prepared by the Southern California Coastal Water Research Project (SCCWRP), which were only recently provided, as well as the Corps estimated effects on those CRAM scores from construction and operation of the proposed project, and estimated gains at the proposed mitigation site.

At this time, the Corps is directing the mitigation planning effort to enhancement and rehabilitation of Carrizo Creek and marsh located west/northwest of the project on the Anza Borrego State Park. Carrizo Creek was chosen by the Corps in coordination with the Applicant and the State Park because of its close proximity to the project, its current protected status (State Park), and because it's within known PBS populations. The IVSP is located in the HUC 8 Salton Sea Watershed with ephemeral streams that are tributary to either Coyote Wash or the Westside Main Canal prior to flowing into the Salton Sea, Carrizo Creek is located in the HUC 8 Carrizo Creek watershed directly to the north, draining into San Felipe Creek and then to the Salton Sea. In coordination with the Corps and State Parks, the Applicant is preparing a draft enhancement and rehabilitation plan that will cover approximately 25 miles of the Carrizo Creek from the headwaters downstream through Carrizo Marsh. State Parks has provided preliminary Tamarisk (Tamarix spp.) infestation mapping which will be updated by the Applicant, methods for removal, and potential costs. The enhancement and rehabilitation plan will be prepared in accordance with the Corps' and EPA Final Mitigation Rule (33 CFR Parts 325 and 332 [40 CFR Part 230]) and will include detailed methods for the initial removal, retreatment methods, limited native replanting of honey and screw bean mesquite trees (Prosopis glandulosa and P. pubescens, respectively) and arrow weed (Pluchea sericea), in Carrizo Marsh, monitoring and reporting protocols, and performance standards partly based on CRAM. The Corps is unlikely to require the applicant to enhance and rehabilitate this entire 25-mile reach of Carrizo Creek to mitigate on-site direct and indirect impacts. The Corps mitigation requirement will likely be on the order of a 3:1 to 5:1 mitigation ratio depending on the enhancement plan and other data currently being collected. It is the Corps approach that the applicant will initiate the first phase of the enhancement effort equal to their final mitigation requirements and that the remainder will be completed as required by other agencies (USFWS or CDFG) or completed by other applicants either through establishing an in-lieu fee program, additional permittee-responsible mitigation, or completed by the State Park through grant funding.

In addition, approximately 6,527 acres of creosote bush shrubland will be preserved to offset adverse impacts to the FTHL (see Condition of Certification and Mitigation Measure Bio-10, Mitigation for FTHL in the SSA and Final EIS, respectively). The exact location of the preservation lands are unknown at this point, but it is anticipated that these locations would have similar ephemeral streambeds as the proposed project area and that these streams would be preserved.

The details of the proposed compensatory mitigation measures, responsible parties, mitigation goals and objectives, implementation schedule, and monitoring and success criteria will be included in a Mitigation and Monitoring Plan to be prepared in accordance with the Mitigation Rule and approved by the Corps before implementation of the proposed project.

In addition to the compensatory mitigation at Carrizo Creek and 6,527 acres of preservation of FTHL habitat, the Applicant proposed other mitigation measures that are specific to state and federally-listed and/or BLM-listed species. These measures are intended to ameliorate or offset the loss in sensitive habitat that supports these species. The mitigation measures specific to the proposed project area are located in the Biological Section and Hydrology, Water Use, and Water Quality sections of the SA/DEIS, SSA, and the Final EIS. Those mitigation measures specific to the SWVTF are located in the Seeley Environmental Review Update docketed with the CEC on May 10th, 2010 (URS 2010).

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# Attachment A - Maps of Off-Site Alternatives

Figure 1. Locations for Alternatives AS-1, AS-2, and AS-3 Figure 2. Mesquite Lake Alternative

Figure 3. Agricultural Lands Alternative

Figure 4. South of Highway 98 Alternative

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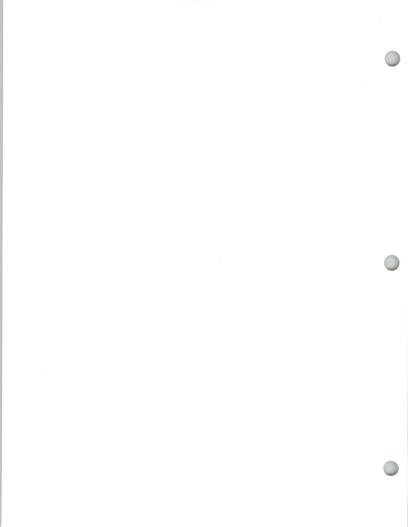


Figure 1. Locations for Alternatives AS-1, AS-2, and AS-3

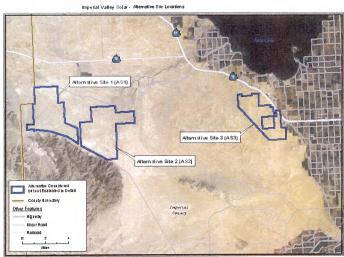
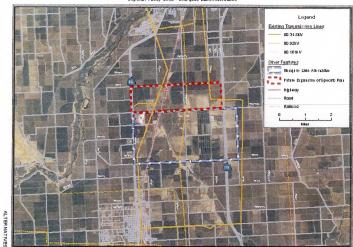


Figure 2. Mesquite Lake Alternative

Imperial Valley Solar - Mes quite Lake Alternative



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION SOURCE: California Energy Commission

Figure 3. Agricultural Lands Alternative

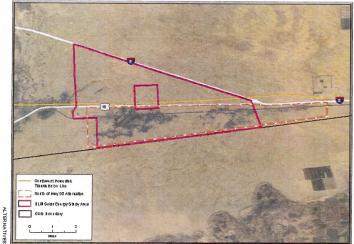
Imperial Valley Solar - Agricultural Lands Alternative



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION SOURCE: California Energy Commission

Figure 4. South of Highway 98 Alternative

Imperial Valley Solar - South of Hwy 98 Alternative



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION SOURCE: California Energy Commission

# Attachment B - Maps of On-Site Alternatives

Map 1. Jurisdictional Waters of the U.S. on the Proposed Project site.

Map 2. 10-year floodplain map for the project area including FEMA 100-year floodplains.

Map 3. Site plan for Alternative # 1 - Applicant's Proposed Project.

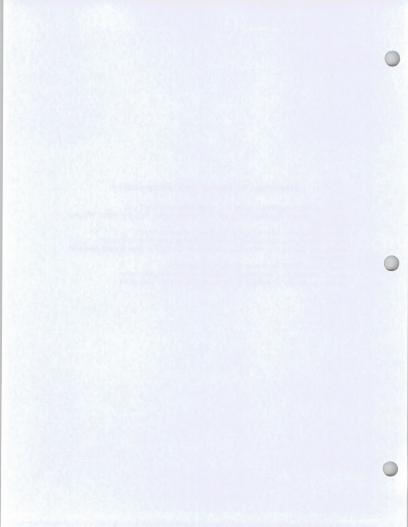
Map 4. Site plan for Alternative #2 - Maximum Energy Generation Alternative.

Map 5. Site plan for Alternative #3 - Avoidance of the Highest Value Aquatic Resources Alternative.

Map 6. Site plan for Alternative #4 - Phase 1 Alternative.

Map 7. Site plan for Alternative #5 - Drainage Avoidance #1 Alternative.

Map 8. Site Plan for Alternative #6 - Drainage Avoidance #2 Alternative.



Map 7, Site plan for Alternative #5 - Drainage Avoidance #1 Alternative.





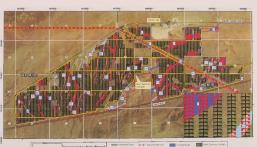
#### Hap 1. Jurisdictional Waters of the U.S. on the Proposed Project way.



Map 2, 10-year floodplain map for the project area including FEMA 100-year floodplains.



#### Map 3, 5to plan for Alternative A' 5 - Applicant's Proposed Project.





Map 4. Site plan for Alternative A2 - Maximum Energy Generation Alternative.





#### Map 6. Site plan for Alternative #4 - Phase 1 Alternative.



# Attachment C - Construction Diagrams

Diagram 1. At grade road crossing for ephemeral washes.

Diagram 2. Perimeter fence layout.

Diagram 3. Stormwater diversions around the substation building near the Main Services Complex.

Diagram 4. Layout of the perimeter fence with the spacing between posts.

Diagram 5. Fence post dimensions for corner posts and line posts.

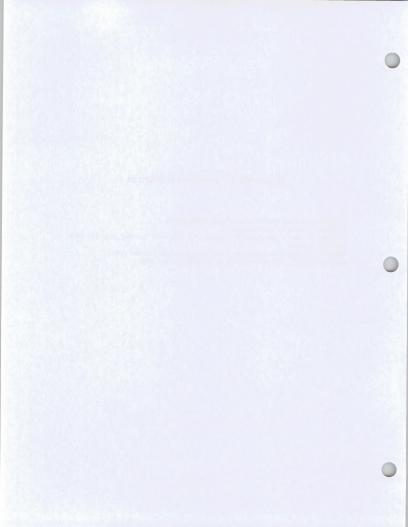


Diagram 1. At grade road crossing for ephemeral washes.

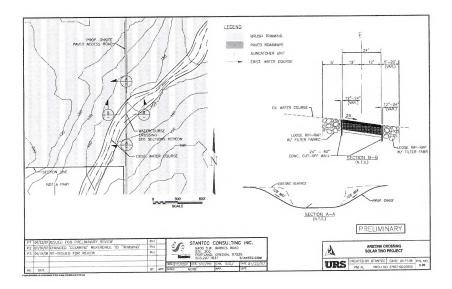
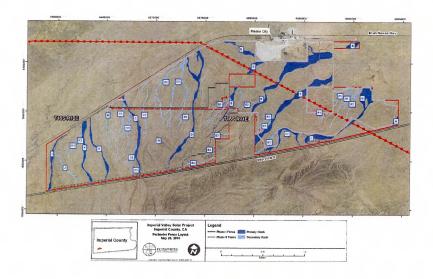
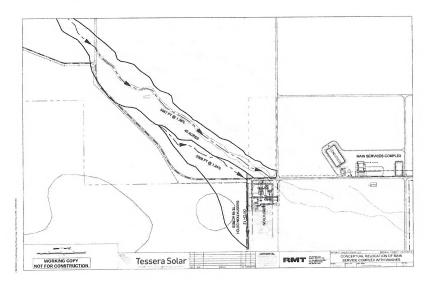


Diagram 2. Perimeter fence layout.



 $\textbf{Diagram 3. Stormwater diversions around the substation building near the \textit{Main Services Complex}.}$ 



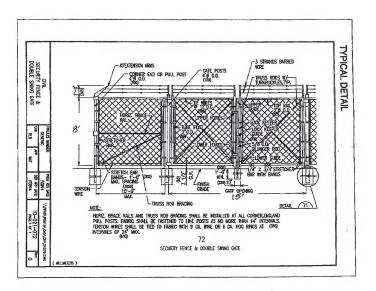
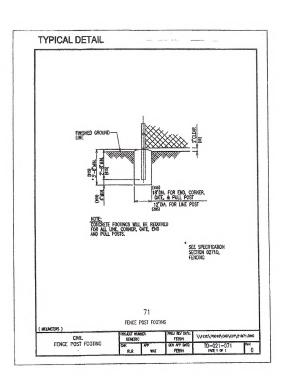
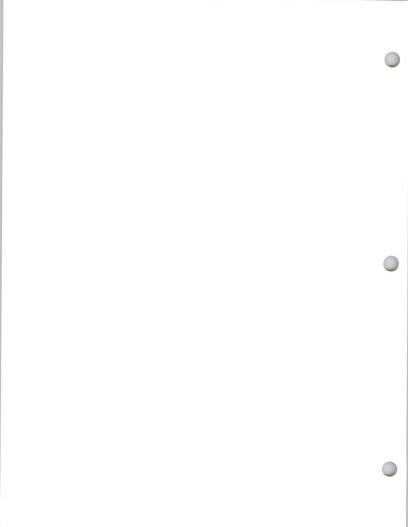
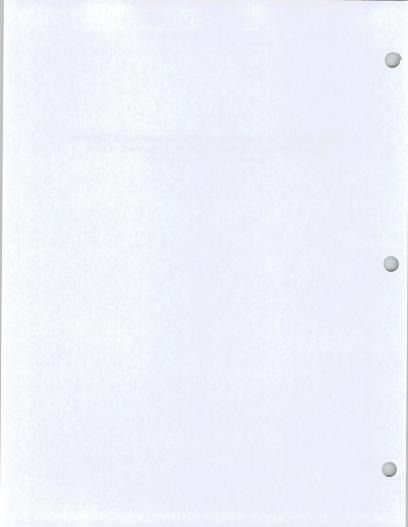


Diagram 5. Fence post dimensions for corner posts and line posts.





Attachment D - An Evaluation of the Application of the California Rapid Assessment Method (CRAM) for Assessment of Arid, Ephemeral Stream Condition



# AN EVALUATION OF THE APPLICATION OF THE CALIFORNIA RAPID ASSESSMENT METHOD (CRAM) FOR ASSESSMENT OF ARID, EMPHEMERAL STREAM CONDITION: DRAFT TECHNICAL REPORT



Prepared for the U.S. Army Corps of Engineers, Los Angeles District by the Southern California Coastal Water Research Project (SCCWRP)

# EXECUTIVE SUMMARY

This report presents the results of baseline research on the development a method to assess the ecological conditions of aird, ephemeral/intermittent streams. The Riverine Module of the California Rapid Assessment Method (CRAM) was used to assess the condition of ephemeral washes in an area of the Yuha Desert, Imperial County, California. CRAM is an existing tool for assessing wetland functional capacity or condition throughout the State of California. It can be used as an initial diagnostic tool of general aquatic resource health and produces condition scores that are comparable and repeatable.

The results of this baseline study indicate that the theoretical construct of CRAM can be applied to arid, ephemeral streams, but certain metrics in the current Riverine Module will need to be recalibrated for these systems. The Landscape and Buffer Attribute can potentially apply to arid systems as currently constructed. The Hydrology Attribute performs reasonably well for arid systems, but some of the current indicators and field techniques will need to be revised in order to assess specific metrics. The Physical and Bloito Structure attributes were the two most problematic attributes to apply to a condition assessment of drainages in the study area.

This represents first phase of a long-term research effort to refine, modify, and validate the Riverine CRAM for application to ephemeral washes in desert regions of California. The results in this report should be applied only in the context of this project and should not be considered to address the larger question of assessment of and, ephemeral stream courses. Future efforts will involve a broader technical team and thorough stakeholder review processes.

## INTRODUCTION

Arid-land fluvial systems dominate the stream types of the arid southwestern United States (Lichvar and Wakeley 2004). These systems are characterized by unique hydrologic and geomorphic attributes that distinguish them from their counterparts in more humid, temperate regions and limit the application of current hydraulic models to describe these systems. These characteristics include:

- Highly localized and extremely variable flow;
- Substantially greater flood magnitudes (as a multiple of average flow);
- Strong interactions with shallow groundwater, notably rapid infiltration and decreasing flow downstream;
- Episodic movement of sediment;
- Transient forms that confound conventional notions of stable and unstable channel form as well as determinations of active versus relict stream processes.

The majority of streams located in arid regions are classified as intermittent and ephemeral. Intermittent streams depend on water from springs or surface runoff, whereas water flow in ephemeral streams feeds groundwater, and, therefore, they only flow during and immediately after storm events, except in areas where stream channels are used to divert and/or disseminate seasonal irrigation (Gordon et al. 2004, Levick et al. 2008).

Despite the episodic nature of surface flow, and land stream systems are recognized as critically important environments that provide valuable ecological benefits by conveying floodwaters and helping to ameliorate flood damage; maintaining water quality and quantity, ensuring sediment continuity with downstream areas; providing habitat for plants, aquatic organisms, and wildlife; and contributing to the ecological productivity of downstream environments (Girnson et al. 1981; Davis et al. 1996; Meyer et al. 2003). Rapid urbanization and other forms of development in and and semi-and landscapes threaten the integrity of these systems. Modification or elimination of and land streams can severely affect baseflows, groundwater recharge, and the biological communities adapted to the natural hydrology and distributary stream networks. Hydrological modifications to such channels can concentrate flows, increase flood intensities, and increase sediment transport and erosion, although the effects of such modifications may not manifest for years or even decades until the next flash flood event.

Because more attention has historically been given to streams located in mesic, coastal areas, appropriate methodologies for assessing the condition of arid land stream systems are tacking. Given the increasing demands being placed on arid land waterways, it is imperative that California develops the capacity to assess the condition of these systems that takes into account their unique physical and ecological processes.

# The California Rapid Assessment Method

The State and Federal agencies that comprise the California Wetlands Monitoring Workgroup (CWMW) are promoting the use of rapid assessment methods (RAMs) as a core tool to evaluate aquatic resource condition. Currently, the most widely used wetland rapid assessment in the state is the California Rapid Assessment Method (CRAM; <a href="www.cramwetlands.org">www.cramwetlands.org</a>). CRAM is intended to provide a rapid and repeatable assessment method that can be used routinely for wetland monitoring and assessments throughout the State of California. It provides consistent and comparable assessments of wetland condition for all wetlands and regions in California, yet accommodates special characteristics of different regions and types of wetlands. The CRAM typology currently recognizes six major wetland types, four of which have subtypes (Table 1), For the purposes of CRAM, condition is defined as the state of a wetland assessment area's physical and biological structure, the hydrology, and its buffer and landscape context relative to the best achievable states for the same type of wetland. Condition is evaluated based on observations made at the time of the assessment, the results of which can be used to infer the ability to provide various functions, services, values and beneficial uses to which a wetland is most suited (Collins et al. 2008), although these are not

<sup>1</sup> The CWMW is a subcommittee of the California Water Quality Monitoring Council (Senate Bill 1070; Kehoe, 2006),

measured directly by CRAM. CRAM also identifies key anthropogenic stressors that may be affecting wetland condition.

Table 1: The CRAM Wetland Typology. Table shows wetland types for which CRAM modules currently exist. (future versions of CRAM may add additional wetland types or subtypes).

CRAM Wetland Types	CRAM Sub-types			
	(these are recognized for some but not all metrics)			
Riverine Ecosystems	Confined Riverine Ecosystems			
	Non-confined Riverine Ecosystems			
Depressional Wetlands	Individual Vernal Pools			
	Vernal Pool Systems			
	Other Depressional Wetlands			
	Perennial Saline Estuarine Wetlands			
Estuarine Wetlands	Perennial Non-saline Estuarine Wetlands			
	Seasonal Estuarine Wetlands			
Playas	no sub-types			
Slope Wetlands	Seeps and Springs			
Stope wettands	Wet Meadows			
Lacustrine Wetlands	no sub-types			

CRAM was developed through the joint efforts of an interregional team of scientists from the Southern California Coastal Water Research Project (SCCWRP), the San Francisco Estuary Institute (SFEI), Moss Landing Marine Laboratories (MLML), and U.C. Davis. The method has undergone extensive technical review and iterative refinement for all CRAM wetland types. In addition, the riverine and estuarine classes have been validated against independent, more intensive measures of condition including benthic invertebrates, riparian britis, and estuarine plant richness and diversity (Stein et al. 2009). This has resulted in refinement of the metrics for these wetland types and provides for a higher level of confidence in the ecological meaning of CRAM scores. CRAM testing, validation, and implementation are coordinated on an ongoing basis by the RAM Subcommittee of the CWMW.

CRAM can be used as an initial diagnostic tool of general aquatic resource health and produces condition scores that are comparable and repeatable. The method is most effective when used as directed by trained professionals in a comprehensive aquatic resource-monitoring program that includes accurate mapping of aquatic habitats and traditional, intensive methods of ecological assessment. Intensive assessment is the quantification of selected processes or health aspects of aquatic areas. It is essential to answer questions about particular plant and animal species, water quality parameters, or other condition aspects that are not individually assessed using RAMs.

CRAM is intended for application to all kinds of wetlands throughout California and method validation efforts have indicated that CRAM is broadly applicable throughout the range of conditions commonly encountered (Stein et al. 2009). However, because CRAM emphasizes the functional contribution of structural complexity, the current vestion of the method has the potential to yield artificially low scores for wetlands that do not naturally appear to be structurally complex. This includes low order, ephemeral streams in the headwater reaches of very and watersheds not to support species-rich plant communities with complex horizontal and vertical structure. CRAM may be systematically biased against such naturally simple systems and it is recognized that this may represent a limit to the method's applicability. For this reason, refinement of some of the CRAM metrics for these subclasses of wetlands may be needed to more appropriately assess these wetland types. The need for concurrent intensive assessment is

particularly needed for arid and/or ephemeral fluvial systems where the expected physical and biological conditions may deviate from those used at the sites used to validate CRAM. Inclusion of ancillary data provides added depth and detail to the condition assessment and can serve to further validate and/or refine CRAM for such systems.

#### PROJECT OBJECTIVES AND GOALS

The overall goal of this effort was to support the continued development and refinement of CRAM and improve its performance and validity in arid land fluvial systems. Specific outcomes related to this effort included:

- Evaluation of the current version of the CRAM Riverine Module for applicability to arid, ephemeral streams
- Collection of baseline condition data to inform upon the refinement and/or modification of the current method:
- Explorations of appropriate ancillary indicators of condition that can be used to validate CRAM for arid systems.

#### METHODS

## Study Site

The study site is located in the southwestern corner of Imperial County (approximately 100 miles east of San Diego, 14 miles west of El Centro, and 4 miles east of Ocotillo Wells) in the Sonoran (Yuha) Desert. It is sited on approximately 6,140 acres of federal land that is administered and managed by the Bureau of Land Management (BLM). The site is comprised of mostly of undeveloped desert land, although approximately 1,039 acres of dirt and off highway vehicle (OHV) roads traverse the site. There are approximately 360 acres of privately owned land (two private parcels; one owned by a recreational vehicle club and one by a private entity) that are surrounded by the project site, but are not a part of the project. Immediately adjacent to the southern boundary of the project site is the Yuha Area of Critical Environmental Concern under BLM jurisdiction. The closest communities to the project site are Edogar and Coyote Wells, located approximately 5 miles east and 4 miles west; respectively.

The region in which the project is located receives an average annual precipitation of 2.65 inches (WRCC data), Rainfall occurs primarily from December to March in the form of widespread winter storms. Approximately 53% of total yearly rainfall occurs during those months. The wettest month of the year is December with an average rainfall of 0.42 inches Summer monsoon storms generally occur from August to October, when approximately 34% of total yearly rainfall occurs. There is very little precipitation during the months of April to July (about 6% of the yearly total).

The study site is characterized by alluvial sediments formed from alluvial fans that gradually slope to the northeast. Ground elevations range from 300 ft on the southwestern area of the site to seal level on the northeastern side. The western portion of the site has a rolling terrain with well-defined washes, whereas the eastern portion has more uniform, gentle slopes and wider, shallow, less-defined washes. The soil within the washes has been mainly deposited by fluvial action, tends to be uniformly sorted, and varies from silt to loose, fine sand. In upland areas not subject to concentrated water flows, the soil is more densely compacted and often contains larger gravel and cobbles. Outcrops of sand/siltstone are common in some of these areas.

The numerous drainages that traverse the site are ephemeral and only convey flows following a substantial rainfall. Headwaters for these drainages are located in gently sloping upland areas located to the south and west of the study site. Culverts under the Interstate 8 Freeway allow flows from south of the freeway to flow beneath the highway and into the study area boundary. The ephemeral washes on the western edge of the site drain north of the site, washes in the center of the site also drain north, but are also estimated to return flow towards the northeastern portion of the site, the ephemeral washes on the eastern half of the site drain east across the site (Appendix 1). All channel flow exits the site beneath Evan Hewes Highway and the railroad track located on the northern boundary. The vegetation community of the washes is classified as Sonoran crosole bush scrub, but they also contain sparse stands of mesquite and tamarisk (SES 2006a). The washes generally contain a greater vegetative diversity and density than the crososte bush scrub habitat outside of the washes (SES 2009s). The site supports a diversity of mammals, birds, and reptiles, including some special status wildlife species, including the burrowing owl and the flattated homed lizard.

# CRAM Framework, Scoring, and Score Interpretation

CRAM assesses four overarching attributes of wetland condition: landscape context, hydrology, physical structure, and biotic structure. Within each of these attributes are a number of metrics (10 total) that assess more specific aspects of wetland condition (Table 2.) In addition to producing) a condition score, CRAM also includes a stressor checklist to help explain the scores and to identify possible management actions to improve condition. A description of these attributes and their corresponding metrics are provided in the results section of this report. Collins et al. (2008) provides a detailed description of the method.

Table 2. Relationship between CRAM attributes and metrics/submetrics. The four attributes are averaged to produce an overall CRAM index score.

Attribute	Metric				
	Landscape Connectivity				
	Buffer:				
Buffer and Landscape Context	t Percent of AA with Buffer				
	Average Buffer Width				
	Buffer Condition				
Hydrology	Water Source				
	Hydroperiod				
	Hydrologic Connectivity				
Physical Structure	Structural Patch Richness				
T Trysical Structure	Topographic Complexity				
Biological Structure	Plant Community:				
	Number of Plant Layers Presents				
	Number of Co-dominants				
	Percent Invasion				
	Horizontal Interspersion and Zonation				
	Vertical Biotic Structure				

The fundamental unit of evaluation for CRAM assessments is termed the Assessment Area (AA). The AA is the portion of the wetland that is assessed using CRAM. To conduct a CRAM assessment, each of the metrics is evaluated for an AA in the field to yield a numeric score for an assessed wetland based either on narative or schematic descriptions of condition or on thresholds across continuous values. Metric descriptions are based on characteristics of wetlands observed across a gradient of reference conditions for each wetland type evaluated (Smith et al. 1995). Choosing the best-fit description for each metric generates a letter grade for each attribute. Metric and attribute scoring in CRAM was developed such that the incremental increase in condition associated with moving from one category to the next higher category is the same across metrics and attributes; that is, an increase from category B to category A. These letter

grades are converted to numeric scores by assigning the following values: A= 12, B= 9, C=6, D=3. Metric scores under each attribute are aggregated in CRAM to yield scores at the level of attributes, and attribute scores are aggregated to yield a single overall index score, via simple arithmetic formulas. Attribute and index scores are expressed as percent possible, ranging from 25 (lowest possible) to a maximum of 100.

Individual CRAM metric scores, attribute scores, and overall AA scores are based on an internal reference standard that represents the best achievable condition statewide for the type of wetland being assessed. Therefore, any two scores for the same type of welland can be compared to each other because they are based on the same statewide standard. For example, an Assessment Area having a score of 50 can be interpreted as having lower ecological condition than another AA of the same wetland type having an AA score of 80. A similar interpretation can be made for Attribute scores.

A repeatability analysis conducted during the CRAM calibration/validation process for riverine systems and estuarine wetlands revealed that Attribute scores and overall AA scores have less than 10% error due to differences in practitioners, with the error rate being less for Attribute scores than overall AA scores. This suggests that the precision of CRAM pribute scores and AA scores for riverine systems and estuarine wetlands is about 10%, or about 10 CRAM points for the AA score (i.e., 10% of the possible 100 points for an AA), and about 5 points for the Attribute scores. Differences in AA scores of 10 CRAM points or less are within the error of the method and therefore should not be considered to represent differences in overall condition. Similarly, two scores for the same Attribute that differ by less than 5 CRAM points should not be regarded as representing differences in condition.

# Study Design

Ephemeral washes were assessed from March 22-April 2, 2010 with the current version of the CRAM Riverine Module. All assessments adhered to recommended maximum and minimum assessment area sizes and specific guidance for assessment of projects from the CRAM User's Manual version 5.02 (Collins et al. 2008) and the CRAM Technical Bulletin (CWMW 2009). Because there are 878 acres of primary and secondary ephemeral streams (~225 thousand linear feet) associated with the study area (Appendix 2), CRAM assessment site locations were probabilistically selected. A map of all possible sampling locations was produced; from this list a subsample of locations were selected for the CRAM assessment areas would represent unique reaches of stream channels to cover a diversity of channel types, sizes, and stream orders. Of the 90 potential CRAM assessment sites probabilistically selected (Appendix 3), 84 of these were assessed with CRAM.

For each CRAM assessment, initial office work included acquisition of site imagery, logistical planning for the site visit, and assembly background information about the site to be assessed and its possible stressors. Previously completed assessments of biology, hydrology, soils, geology, and other data for the study site were used to support this phase of the assessment.

Because of the close association between riparian vegetation and stream hydrology (Lichvar and Wakeley 2004), intensive vegetation data were collected at a subset of sites at the time of the CRAM assessments. The point intercept method was used by walking along a transect tape placed across the CRAM assessment area (perpendicular to the stream channel) and recording the number of "hits" of vegetation (percent cover and species richness was only assessed for plants growing in the channel and active floodplain). Using this method, total cover of plant species was also estimated by recording the plant species when intercepted by a point.

In addition, ancillary hydrologic and geomorphic indicators e.g. physical/structural patch type data were also collected opportunistically at CRAM assessments areas. These data were used to both inform upon the CRAM condition assessments and contribute to a longer-term effort of refining and validating CRAM for future applications in and and

desert regions of the State. These data included documentation of different or new patch types observed at each site as well as the exploration of alternative ways to describe and document indicators of channel stability and hydrologic connectivity to better characterize and systems.

# Analysis

Information from the previously completed reports on the biology, hydrology, soils, and geology for the project site were synthesized to provide an overall evaluation of the site for the office portion of the CRAM assessments. CRAM scores (Attribute and Overall scores) were summarized with descriptive statistics. The results are displayed graphically and in tabular format. Vegetation transect data was summarized in tabular format. CRAM Index scores were compared with the results of the plant survey data using linear regression. Because there is insufficient data available at this time to describe the statistical distribution of metric scores, of their averages, or of the Attribute scores and overall AA scores calculated from the average metric scores, these data were not statistically analyzed using any parametric procedures.

# RESULTS

A total of 84 stream sites within the study site were assessed with CRAM (Appendix 4; Appendix 5a-b). None of the siture or contained flowing surface water at the time of the CRAM assessment. All sites were classified as unconfined riverine systems (i.e. the width of the valley across which the system can migrate without encountering a hillsuck, terrace, or other feature that is likely to prevent further migration is at least twice the average bankfull width of the channel).

Most of the primary sites assessed were compound ephemeral channels. Compound ephemeral channels (Lichvar et al. 2009; Lichvar and McColley 2008) are characterized by a mosaic of terraces within a wide, active floodplain by a single, low-flow meandering channel inset into a wider braided channel network and mosaic of terraces (Graf 1986a). These channels are highly susceptible to widening and avulsions (channel relocation) during moderate to high discharges, reestablishing a low-flow channel during subsequent low flows (Lichvar et al. 2009; Lichvar and McColley 2008).

Figure 1. Examples of compound ephemeral channels on the study area.





A smaller number of the secondary drainages assessed were discontinuous ephemeral streams (Lichwar et al. 2009; Lichwar and McColley 2008; Figure 2). Discontinuous ephemeral streams are characterized by alternating erosinal and depositional reaches. They are constantly in flux, as headcuts (knick points) originating at the downstream end of the sheetflood zone migrate upstream, causing dramatic temporal and spatial changes in channel morphology for any ovien location.

Figure 2. Examples of discontinuous ephemeral channels on the study area.





A high density of closely spaced braided channels with high width-to-depth ratio and low siruosity generally characterize the larger drainages on the study site. Most of the channels encountered tended to have deep sediments composed of sands and gravels, with widely scattered vegetation growing within the channel and its floodplain. Headwater drainages on the site are characterized by some gullying and "badland" development. High width-to-depth ratios, braided channels and low sinuosity are often the result of high sediment concentrations and coarse arain sizes (Bull and Kirkby 2002).

## Condition Assessment with CRAM

Overall CRAM index scores for these sites ranged from \$3 to 80 ( $\mu$ = 88,  $\alpha$ =6; Table 3: Appendix 4). AA 154 (C-44) received the highest overall index score and AA 356 (E-105), 289 (E-86), and 124 (B-35) were the three lowest scoring sites in the study area (Appendix 1). Based on the known precision for overall index scores, AA scores that differ by 11 CRAM points or greater should be considered to represent differences in overall condition (see Appendix 4). For example, AA 154 (C-44), with an Overall index Score of 80, can be interpreted as having higher ecological condition than AA 103 (A-30), which received a score of 67. However, AA 53 (C-19) and AA 57 (G-21), which received overall index scores of 79 and 72, respectively, do not represent significant differences in overall condition. A similar interpretation can be made for Attribute scores. Two scores for the same Attribute that differ by less than 5 CRAM points should not be regarded as representing differences in condition. Table 2 lists the distribution of metric and submetric scores (A-D) for all sites combined.

Table 3. Summary statistics of CRAM scores from the study site.

CRAM Index and Attributes	Mean	SE	SD	Median	Maximum	Minimum
Overall index Score	68	1	6	69	80	53
Landscape Context	95	1	9	100	100	48
Hydrology	91	1	5	92	100	67
Physical Structure	41	1	13	50	75	25
Biotic Structure	46	1	9	44	75	31

No dramatic spatial trends in drainage condition scores were evident on the study site (Appendix 6). Some assessments areas located near the perimeter of the study site tended to score lower than sites located near its center.

# Buffer and Landscape Context Attribute

For riverine CRAM, this attribute is scored with two metrics 1) the continuity of the riparian comidor over a prescribed distance upstream and downstream of the assessment area 2) the amount, size, and condition of the buffer on both sides of the assessment area. Final condition scores for the Landscape and Buffer Context attribute ranged from 48-100 ( $\mu$ = 95,  $\sigma$ = 9; Table 3). Overall, this was the highest scoring CRAM attribute, with 67% of sites assessed receiving a score of 100 (the highest obtainable for this attribute). The metrics comprising this attribute assess the ability of wildlife to enter the riparian area from outside of it at any place and to move easily through adequate cover along the riparian comidor through the assessment area from upstream and downstream.

## Landscape Connectivity Metric

The majority of sites (87%) scored an "A(12)" for this metric (Figure 3). CRAM AAs 269 and 356 were the only AAs within the study site to receive a "D(3)" score for the landscape connectivity metric. This was due to their proximity to Plaster City and its effect on the continuity of the landscape/irpain connectivity for both of these sites.

## Buffer Metric

The majority of sites received very high scores for all of the submetrics that comprise the Buffer Metric. All sites (100%) had at least 5 meters of suitable buffer on each side of the AA and scored an "A(12)" for the Percent AA with Buffer Submetric. Most sites (65%) had a mean buffer width of 250 m and scored an "A(12)" for the Buffer Width Submetric (a site must have a mean buffer width of 190 meters to receive an "A"). For the Buffer Condition Submetric, 74% of sites received an "A(12)", indicating that the buffer is dominated by native vegetation, has undisturbed soils, and subject to little or no human visitation (Figure 3).

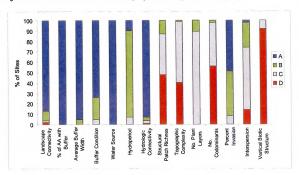


Figure 3. Distribution of metric/submetric scores (A-D) based on the percent of sites (N=84).

# Hydrology Attribute

For riverine CRAM, this attribute is scored with three metrics: 1) Water Source (direct fresh water sources to the channel during the dry season), 2) Channel Stability the degree of channel aggradation or degradation), and 3) Hydrologic Connectivity (assessed based on the degree of channel entrenchment, calculated as the flood-prone width divided by the bankfull width; Leopold et al. 1964, Rosgen 1996, Montgomery and MacDonald 2002). These metrics are discussed in detail below. Final scores for the Hydrology attribute ranged from 67-100 (µ=91, r= 5, Table 3). Overall, this CRAM attribute scored relatively high, with 86% of sites assessed receiving a final score of 92 or greater. Metrics of the Hydrology attribute in CRAM assess the sources, quantities, and movements of water, plus the quantities, transport, and fates of water-borne materials, particularly sediment as bed load and suspended load (Collins et al. 2008).

# Water Source Metric

This metric assesses the kinds of direct inputs of water into the AA during the dry season, as well as any diversions of water from the AA that affect the extern, duration, and frequency of saturated or ponded conditions within the AB Because all drainages assessed with CRAM within the study site were characterized as ephemeral and contained no surface flow at the time of the assessment, all sites scored an "A (12)" for this metric (i.e. their freshwater sources are either precipitation or they naturally lack water in the dry season; Figure 3). There was no indication that unnatural (anthropogenic) sources of water contributed to any dry season flows.

Although all of the drainages did not contain surface flow at the time of the CRAM assessments, it is possible that they could contain flowing water in the dry season (albeit infrequently) following precipitation events large enough to produce runoff. Rainfall is extremely scant in the Yuha Desert, and long periods of time may occur between runoff events. Although the majority of the rainfall occurs during winter, the majority (65%) of annual runoff occurs during the summer months of July to September. Runoff events, when they occur, are generally activated by intense summer monsoon rains that produce short duration flash flooding with high flow peaks. Although winter storms produce more rain on average than summer monsoons, they are widespread and low-intensity, and expected to

contribute less to runoff events on the project site, especially due to the relatively small size of the site's contributing watershed. For larger watersheds, winter runoff can potentially have a more pronounced effect on surface flow in arid, ephemeral systems.

## Channel Stability Metric

This metric assesses the degree of channel aggradation (i.e. net accumulation of sediment on the channel bed causing it to rise over time) or degradation (i.e. net loss of sediment from the bed causing it to be lower over time). Associated indicates are related to the frequency and duration of flooding (as indicated by the local relationship between stream depth and time spent at depth over a prescribed period), and flood frequency (i.e. how often a flood of a certain height is likely to occur). These characteristics, plus channel form in cross-section and plan view, steepness of the channel bed, material composition of the bed, sediment loads, and the amount of woody material entering the channel all interact to create the physical structure and form of the channel at any given time. The majority of AAs (83%; Figure 3) on the study site scored a "B(9)" for the Channel Stability metric. Some indicators of aggradation were observed at most sites, none of which were considered severe.

The majority of sites assessed with CRAM in the study area were characterized by various indicators of equilibrium and aggradation. Indicators of active degradation were very rarely encountered. The three most common indicators of equilibrium observed included 1) channels (both low flow and secondary channels) with a well-defined bankfull contour), 2) little evidence of active undercutting or burial of riparian vegetation, and 3) well-sorted of bed material on channel bars. The three most common indicators of aggradation observed included 1) an active floodplain with fresh splays of course sediment, 2) perennial terrestrial/riparian vegetation encroachment into the channel, and 3) a planar bed.

Erosion, transport, and deposition of sediment all have the potential to occur on the study site. Transport of sediment into the site comes from south of Interstate 8, where several large basins drain through the site. When flooding occurs, detached sediment from these off-site basins can be deposited within the site. Sediment from off-site basins entering the project area south of the site is transported through existing washes on-site, and typically exists through the northern and northeastern sections of the site. However, due to the presence of the railroad and Dunaway Road embankments on the north/northeast, not all the sediment is able to exit the site, creating a net positive sediment balance in the channels on the site over time.

# Hydrologic Connectivity Metric

This metric is scored by assessing the degree to which the lateral movement of flood waters or the associated upland transition zone of the AA and is restricted by unnatural features such as levees, sea walls, or road grades. For fluvial systems, Hydrologic Connectivity is assessed based on the degree of channel entrenchment, or the inability of flows in a channel to exceed the channel banks. Where an entrenchment ratio was measured, (93% Figure 3) scored an "A(12)" for this metric, indicating that channels are not entrenched (mean entrenchment ratio for sites was 6.6 m).

# Physical Structure Attribute

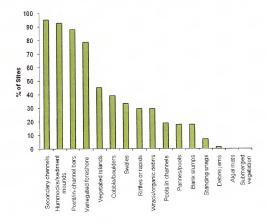
For CRAM, this attribute is scored with two metrics: 1) Patch Richness (the number of different obvious types of physical surfaces or features that may provide habitat for aquatic, wetland, or riparian species) and 2) Topographic Complexity (the spatial arrangement and interspersion of patch types). The topographic complexity metric assesses the variety of elevations within a wetland due to physical, abiotic features and elevations gradients. Typical indicators of macro- and micro-topographic complexity for riverine systems include pools, runs, glides, pits, ponds, hummocks, bars, debris jams, cobble, boulders, slump blocks, tree-fall holes, plant hummocks. Final scores for the Physical Structure attribute ranged from 25-75 (µ=41, o= 13, Table 3). Overall, this was the lowest scoring CRAM attribute, with 30% of sites assessed receiving a final score of 25 (the lowest possible for this metric).

Metrics of the Physical Structure attribute in CRAM focus on physical conditions that are indicative of the capacity of an area to support characteristic flora and fauna. The distribution and abundance of organisms in riverine systems are largely controlled by physical processes and the resulting physical characteristics of habitats (Frissell et al. 1986). The richness of physical, structural surfaces and features in a wetland reflects the diversity of physical processes, such as energy dissipation, water storage, and groundwater exchange, which strongly affect the potential ecological complexity of the wetland. The basic assumption is that natural physical complexity promotes natural ecological complexity, which in tum generally increases ecological functions, beneficial uses, and the overall condition of a wetland. For each wetland type, there are visible patches of physical structure that typically occur at multiple points along the hydrologic/moisture gradient.

# Structural Patch Type Richness Metric

A mean number of six (6) patch types were recorded at all sites, and almost half of the sites assessed (48%; Figure 3) received a soore of 'D(3) for this metric (i.e. five or fewer patch types were observed). All sites assessed were non-confined riverine systems, and although 16 patch types expected were expected to occur, only 14 were observed (Figure 4).

Figure 4: Occurrence of patch types based on the percent of sites assessed in the study area.



# Topographic Complexity Metric

Most sites (58%) scored a "C (6)" or "D (3)" (40%; Figure 3) for this metric. Most AAs were characterized by a single bench or obvious break in slope. Only one site (154) scored a "E (9)" for this metric and no sites scored an "A (12)". This metric is scored using a diagrammatic sketch and corresponding narrative.

## Biotic Structure

Metrics comprising this attribute focus on aspects of the vascular vegetation that contribute to a wetland's material structure and architecture. It is scored with three metrics 1) Plant Community (number of vegetation layers, dominant plant species richness, and the number of invasive co-dominant species), 2) Horizontal Interspersion and Zonation (the number of distinct plant zones and the amount of edge between them), and 3) Vertical Biotic Structure (the degree of overlap among plant layers). Final condition scores for the Biotic Structure attribute ranged from 53-80 ( $\mu$ = 46,  $\sigma$ = 9; Table 3). Overall, this was the second lowest scoring CRAM attribute, with 73% of sites assessed receiving a final score of 47 or less.

# Plant Community Metric

The Plant Community Metric is scored as the average of three submetrics (number of vegetation layers, dominant plant species richness, and the number of invasive co-dominant species). To be counted in CRAM, a plant layer must cover at least 5% of the portion of the AA that is suitable for that layer. The Co-dominant Species submetric is assessed as living vegetation that comprises at least 10% relative cover within each plant layer identified in the AA. The number of invasive co-dominant species for all plant layers combined is assessed as a percentage of the total number of co-dominants, based on the results of the Number of Co-dominant Species submetric.

Within the study area, 89% received a "C(6)" for the Plant Layer submetric (a mean of two plant layers, although up to three layers were recorded at a few sites), 55% of sites scored a "D(3)" for the Number of Co-dominant Species submetric (a mean of five species), and 49% and 43% of sites scored an "A(12)" and "B(9)", respectively, for the Percent Co-dominant Species that are Invasive submetric (Figure 3). The six most common co-dominant species to occur in the washes are (in order): Ambrosia dumosa (bursage), Larnea tridentate (crecsote), Pleuraphis rigida (big galleta), Aristida adscensionis (sixweeks threeawn), Brassica tourneforti (Sahara mustard), and Enceila findescens (button brittlebush). Of these only Brassica tourneforti is non-native and considered invasive.

CRAM Index Scores were significantly correlated (r =0.58; p=.0001) with the total cover of native plant species calculated from the point-intercept transects conducted at the CRAM assessment sites (Figure 5). A similar relationship was observed for overall CRAM scores and plant species richness. There was a mean total native plant cover of 22.2% for all sites. Non-native cover was less than 1%. A total of 31 plant species (4 of which were invasive) were recorded from the point-intercept transects. Average heights for each plant species intercepted ranged from 0.01 cm-1.12 m.

70.0 60.0 **Fotal Native Plant Cover** 50.0 40.0 30.0 20.0 10.0 0.0 95 25 35 45 55 65 75 85

Figure 5. Correlation of Overall CRAM Scores with total native plant cover at CRAM Assessment areas.

# Horizontal interspersion and Zonation

Horizontal biotic structure refers to the variety and interspersion of plant "zones." Plant zones are plant monocultures or an obvious multi-species association that are arrayed along gradients of elevation, moisture, or other environmental factors that seem to affect the plant community organization in plan view. Interspersion is essentially a measure of the number of distinct plant zones and the amount of edge between them. The existence of multiple horizontal plant zones indicates a well-developed plant community and predictable sedimentary and bio-chemical processes. The amount of interspersion among these plant zones is indicative of the spatial heterogeneity of these processes. Richer native communities of plants and animals tend to be associated with greater zonation and more interspersion of the plant zones.

Overall CRAM Scores

60% of sites on the project site received a "C(6)" for this metric, indicating a low degree of horizontal interspersion/zonation (Figure 3).

## Vertical Biotic Structure

The vertical component of biotic structure is commonly recognized as the overall number of plant layers, their spatial extent, and their vertical overlap relative to the expected conditions. The same plant layers used to assess the Plant Community Composition metrics are used to assess Vertical Biotic Structure. The overall ecological diversity of a wetland tends to correlate with the vertical complexity of the wetland's vegetation. For many types of wetlands in California, overlapping layers of vegetation above or below the water surface contribute to vertical gradients in light and temperature that result in greater species diversity of macroinvertebrates, fishes, amphibians, and birds. In riparian areas, the species richness of birds and small mammals tends to increase with the density and number of well-developed, overlapping plant layers. Many species of birds that nest near the ground or water surface in wetlands commonly require a cover of vegetation at their nest sites. Multiple layers of vegetation also enhance hydrological functions, including rainfall interception, reduced evaporation from soils, and enhanced filtration of floorwaters.

9.2% of sites (Figure 3) on the study site received a "D(3)" score for this metric, indicating one of three conditions 1) less than 25% of the vegetated AA supports moderate overlap of plant layers, 2) two layers are well represented with little overlap, of 3) AA is sparsely vegetated overall.

#### Stressors

Very few anthropogenic stressors affecting CRAM assessment areas were recorded on the study site. The few stressors that were recorded were observed at the landscape scale (within 500 m of the AA) and included transportation corridors (for perimeter sites) and active recreation in the form of evidence of off-road vehicle activity.

## DISCUSSION

This research represents the first phase of the development a method to assess the ecological conditions of arid, ephemeral/firtermilltent streams. The goal of this initial effort was to evaluate the performance of CRAM for arid land ephemeral systems and establish any relationships with the anciliary data that were collected as part of this project. This information will help to inform an initial recommendation for refinement or modification of specific CRAM metrics as they relate to arid emphemeral stream systems. The results in this technical report should be applied only in the context of the study area and should not be considered to address larger issued as they pertain to the assessment of and, ephemeral stream courses throughout California. Any generalizations as they apply to these systems would need to involve a larger study area, a broader technical advisory team, and a vetting process that involves a thorough technical and stakeholder review of findings and recommendations.

# Performance of CRAM in Arid, Ephemeral Stream Systems

The results of this baseline study indicate that the theoretical construct of CRAM can be applied to arid, ephemeral streams. The current Riverine Module was able to discriminate along a gradient of drainage conditions within the study site. Some AAs received higher overall index and attibute scores than others that were outside of the margin of error for the method (see Appendix 2 for site scores). Therefore, it is statistically valid to describe some sites as having a better condition than others based on CRAM condition scores. However, the study site is located in relatively undeveloped, remote area, and few anthropogenic stressors were recorded for the CRAM assessments, so it could be expected that sites would have higher condition scores that reflected by the probabilistic survey (e.g. only one site had an overall score of 80). This indicates that certain metrics in the current Riverine Module will need to be recalibrated and, ephemeral streams.

# Delineation of the CRAM Assessment Area (AA)

Delineation of a CRAM AA using the current CRAM guidelines was tractable for the majority of sites assessed in the study area. Past studies have shown that the terrace floodplain in arid west intermittent and ephemeral streams maintains its vegetative and morphology composition with discharges as large as an 18.7-year flood event (Lichvar et al. 2009). Bankfull and active channels basically function as one channel and the outer boundary of this single channel represents the extent off ordinary high water. This outer boundary generally corresponded to the lateral extent of most of the areas assessed in the study area.

However, determining the lateral extent of the wider, shallow wash areas in downstream reaches of the study area was problematic for several sites. In addition to their pronounced widths, the lower reaches of ephemeral streams were noted for their planar, falt bed topography and discriminating lateral extent using the current guidance was generally not applicable. For these sites, reliance on the practitioner's best professional judgment was used to delineate this boundary, defined as the point where fluvial features could not longer be easily discerned in the field. This rule set led to the establishment of a few relatively wide assessment areas.

# Landscape and Buffer Context

Because this attribute of CRAM addresses general landscape aspects of the riparian vegetation and buffer of a site, the metrics as scored with the Riverine Module are generally applicable to sites within the study area. The metric scores for this attribute reflect that the study site is located in a relatively remote section of the Yuha Desert and few interruptions to the riparian continuity and impacts to the buffer were present for most of the areas assessed. Although the existing riparian vegetation on the study site may differ in complexity, structure and species composition from more mesic riparian systems, the connectivity of the riparian corridor and buffer of arid, ephemeral streams still provide important structural habitat for a variety of wildlife species, play an important role in the dispersal of both animals and plants, and also shade and stabilize fluvial environments, providing habitat for aquatic organisms ((kaiman et al. 1993, Patten 1998).

Generally as the hydrologic regime shifts from perennial to ephemeral, the riparian vegetation composition shifts towards more drought-lolerant (xeroriparian) species, vegetation cover declines, riparian woodlands give way to riparian shrublands, and canopy height and upper canopy vegetation volume decline (Leenhouts et al. 2006; Stromberg et al. 2007). Along small desert washes, vegetation composition and structure overlap considerably with those of the surrounding desert uplands (Bloss and Brotherson 1979; Warren and Anderson 1985) and consist primarily of small, xerophytic shrubs and trees that can occur in both riparian and adjacent upland habitats. This type of habitat typified the riparian vegetation of most of the CRAM assessments areas in the study area.

# Hydrology

All metrics comprising the Hydrology Attribute all received relatively high scores for desert washes on the study site (see Figure 3). Most of the sites assessed consistently exhibited some indicators of equilibrium and aggradation (as described on the CRAM worksheet for assessing riverine channel stability). However, some explanation is needed on interpretation and application of some of these metrics for aid land stream systems in general.

## Channel Stability

Ephemeral streams are unique in that they lack permanent flow except in response to rainfall events. Nevertheless, they perform the same ortical hydrologic functions as perennial streams: they move water, sediment, nutrients, and debits through the stream network and provide connectivity within the watershet. These streams experience extreme and rapid variations in flood regime, and as a consequence rarely reach process-form equilibrium where flow conditions change too rapidly for bedforms to develop a form matching that flow, so sedimentary structures can give a misleading oldure of the flow that occurred (North 2005).

The Channel Stability Metric of CRAM is based on the concept of stream equilibrium. Due to the wide discrepancy in record and average annual peak flows in aid regions and the high sensitivity of and-region rivers to change, dryland rivers rarely reach this state (Grif 1988a, Tooth and Nanson 2000a) and the general applicability of the equilibrium concept to desert regions has been called into question (Tooth 2000). The effects of extreme events persist in deserts for long periods because of the inability of the stream channel to recover or "heal" from large floods, in part due to the absence of sufficient revegetation (Baker 1977, Graf 1988a).

Therefore, it is important to note that indicators of aggradation should be expected for naturally functioning and, ephemeral streams. Perturbation to the natural process of sediment delivery and flood waters could this lead to incision/downcutting of the stream channel. In this case, these indicators would be indicative of a lower condition rating for CRAM. This was not observed for systems within the study areas as all sites were subject to relatively natural processes of water and sediment delivery throughout most of their reach.

# Hydrologic Connectivity

Although most sites assessed in the study area scored high for this metric (i.e. channels were generally not entrenched), the conceptual model and field techniques used to assesses this metric in the field under the current CRAM Riverine Module will require reevaluation for aridiand streams. Studies suggest that ephemeral (and intermittent) streams in the Arid West do not have separate bankfull channels and active floodplains, instead the bankfull and active floodplain combine to make one active floodplain where the majority of fluvial activity occurs (Lichvar and McColley 2008). The low-flow channel in the active floodplain of ephemeral streams differs from the bankfull channel of permital streams in the Arid West, the low-flow channel will form and relocate during low to moderate discharge events (5–10 years) instead of being maintained by continuous flows, as in perennial streams.

Further, the delivery of water to a channel is dependent largely on the timing, duration, and amount of water that falls on the surface and subsequently runs off, which is dependent on soil typie, and condition of the contributing watershed and buffer. Small tributaries generally have land-dominated hydrographs as opposed to stream-flow dominated, because they mainly drain adjacent land surfaces (Levick et al. 2008). Therefore, the importance of hydrologic connectivity for streams in and environments relates more to the delivery of water, sediment, nutrients, compounds, etc. to downstream areas, rather than lateral connectivity between the channel and its uplands (i.e. condition of the upstream basin/contributing watershed is a driving factor for streams and land stream systems. A revision of this metric that considers the connectivity between multiple channels in the floodplain as well as the upstream condition of the contributing watershed may be a more appropriate measure for aridland streams. This could include the development of a metric that assesses the connectivity between the main low flow channel and its numerous secondary channels within the greater floodplain.

# Physical Structure

The metrics used to score the Physical Structure Attribute of CRAM (physical patch types and topographic complexity) generally scored very low for the ephemeral washes assessed on the study site (see Figure 3).

In ephemeral stream channels, numerous patch types are possible. The vegetation that establishes on sand bars typically initiates the formation of various depositional features such as small current shadows, bars, benches, ridges, or Islands (Tooth and Nanson, 2000). Spatially extensive assemblages of any plant species have the potential to alter geomorphology and geomorphic processes through bioturbation, alteration of nutrient or fire cycles, and patterns of succession (Lovids, 1986).

In the lower reaches of ephemeral streams, physical patch types, when encountered, are typically less common or of a different type when compared to higher reaches. Channel bars are often flat-topped and rise only 10-20 cm above the thalweg (Leopold et al. 1965; Frostick and Reid 1977, 1979). Wide, shallow flows in lower stream reaches suppress the secondary current cells that encourage the development of bars (Reid and Frostick, 1997). Rapidly receding flows can further destroy or modify bedforms such as ripples, dunes, and antidunes that may develop at greater flow depths. Bedforms in streams are created when water currents carry loose grains across the horizontal surface of unconsolidated sediments, the size and shape, which are determined by the flow velocity, direction, and consistency.

The rating for CRAM patch types is based on the percent of total expected patch types for a given type of aquatic system. Generally, most sites cored low for this metric, with few patch types observed. However, this may be misleading for several reasons. Many of the patch types assessed with the current module would not be expected to occur in for arid, ephemeral streams (e.g. algae, submerged vegetation), thus leading to artificially deflated scores. Furthermore, some patch types that could be expected to occur (e.g. silt deposits, mud cracks, and animal burrows; Appendix 7a-b) are not considered for riverine systems in the current module. Animal burrows (mammal and insect) were especially prevalent at several of the sites assessed. Therefore, the total expected patch types for arid,

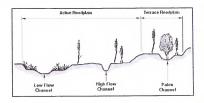
ephemeral streams should be revised by adding/deleting types, as appropriate, for more accurate scoring of this metric.

Topographic Complexity

For CRAM, topographic complexity is evaluated by observing the number of elevational features that affect moisture gradients or that influence the path of water flow along a transect across the assessment area (as viewed along a typical cross-section), and the amount of micro-topographic relief along the gradients or flow paths. Topographic gradients may further be indicated by plant assemblages with different inundation and/or saturation tolerances. Because almost all sites scored relatively low for this metric, the way in which it is assessed for arid, ephemeral streams will require revision.

To receive a high for this CRAM metric, the presence of two elevational changes (i.e. "benches" or breaks in channel slope) is required. In perennial streams, benching is facilitated by variations in flow and sediment regimes. Because andland streams experience extreme and rapid variations in flood regime, the formation of benches is not a process that is expected to occur. Revised cross-section diagrams for arid stream systems would assist in interpretation of the topographic complexity metric, and potentially generate more variable scores for this metric. For example, these cross-section diagrams could depict representations of in-channel features (low flow channel, active floodplain, and adjacent terraces e.g., Fligure 6) rather than elevational changes associated exclusively with the edge of the

Figure 6. Typical arid, ephemeral/intermittent stream cross section and its associated hydrogeomorphic floodplain units (Lichvar et al. 2009).



## **Biotic Structure**

## Plant Community Composition

The Plant Community Metric scored consistently low for all sites assessed in the study area. This was not surprising, as the 'Vuha Desert (the region in which the study area is located) is characterized by extremely low rainfall and sparse vegetation. It is expected that riparian plant diversity (i.e co-dominant species) would be low for this region.

The composition of riparian vegetation along desert streams reflects the vegetation composition of its watershed and floristic province, as well as with drainage size, climatic regime, latitude, longitude, elevation, aspect, and soil characteristics. As the hydrologic regime shifts from perennial to ephemeral, vegetation composition shifts towards more drought-tolerant species, vegetation cover declines, riparian woodlands give way to riparian shrublands, and canopy height and upper canopy vegetation volume decline (Leenhouts et al. 2006; Stromberg et al. 2007). Along small desert washes, vegetation composition and structure overlap considerably with those of the surrounding desert

uplands (Bloss and Brotherson 1979; Warren and Anderson 1985) and consist primarily of small, xerophytic shrubs and trees.

The CRAM assessment 'window' (the period of time each year when CRAM assessments should be conducted) is another factor that must be considered for assessing the Plant Community Metric for ephemeral systems in arid regions. During seasonal dry periods, plant species diversity along ephemeral stream channels can even be lower than that of the adjacent uplands (Leitner 1987). However, during seasonal wet periods, stem and leaf succulents, perennial grasses, annual grasses and fortis can become seasonally abundant and species diversity levels along some ephemeral stream reaches can equal that of prennial streams (Stromberg et al 2009). In order to account for the seasonally abundant herb (typically short) layer associated with arid, ephemeral stream systems, an earlier and abbreviated assessment window may be necessary so that co-dominant plant species richness can be acutely assesses.

In general, the CRAM Assessment Window falls within the growing season for the characteristic plant community of the system to be assessed (Collins et al. 2008). For example, the growing season for seasonal wetlands (e.g., vernal pools, playas, and some seeps) will generally be March through June, although it can be much shorter depending on local environmental factors. Because the timing of the growing season varies with altitude and latitude, the CRAM assessment window might vary within and between regions, and local or regional cues may be needed to determine when the window opens and closes each year. The best cues will be the early evidence of new growth of plants, and the subsequent senescence of the plants, for any given wetland types. For example, the assessment of ephemeral streams in and regions might begin early in the growing season (the window is opening) but before the end of springtime and desiccation of the soils (the window is closing). For the region in which the study area is located (Yuha Desert), the CRAM assessment window may needed to be very short (e.g. January-April) to account for the extremes in temperature and very low rainfall.

# Horizontal Interspersion and Zonation

Riparian vegetation in semi-arid and arid regions is typically spatially heterogeneous. Often, distinct vegetation patch types can be readily distinguished on the basis of species composition, species dominance, and/or vegetation structure. Where hydrologic conditions do not support the growth of riparian forests, fiprainar zones in aird systems may still support vegetation communities distinct in composition or structure from nearby uplands (Stromberg et al. 1993, Evans 2001).

Vegetation structure also shifts as watershed size and flood intensity increase. On large, dry ephemeral streams with intense flood soour, species composition shifts towards pioneer species. Zonation can occur between fluvial surfaces within an ephemeral-stream bottomland, with the pioneer species sometimes being more abundant in the active channel bed than on the stream banks or flood plain (Bloss and Brotherson 1979). However, for other ephemeral streams, the floodplain contributes more to the plant community composition than the channel.

Given the low plant community composition of the study area, it is expected that plant horizontal interspersion and zonation would be correspondingly low. Although most sites scored a "C" for this metric, there was some variability in scores among the sites assessed that was not observed in the other metrics comprising the Biotic Structure Attribute (see Figure 3). For example, Pleuraphis rigida was one species on in the study area that was typically interspersed within the dry washes and seldom observed growing outside of the channels and floodplains. It could be expected that sites located in more mesic and botanically diverse desert regions could score higher for the horizontal interspersion and zonation metric. Therefore, based on the results of the probabilistic survey, this metric as assessed by the CRAM Riverine Module appears to conceptually apply to drainages within the study area, and could potentially have application to aridland stream systems in other regions.

## Vertical Biotic Structure

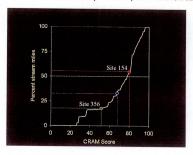
Like perennial stream systems, the vegetative communities along ephemeral and intermittent streams provide structural elements of food, cover, nesting and breeding habitat, and movement/migration corridors for wildlife that are not as available in the adjacent uplands. In ophemeral and intermittent streams, the structure and composition of the vegetation is related to the size of the stream and patterns of flow, although most of the diversity is comprised of hortaceous species (Bagstate at al. 2005). Functional services of these communities include moderating soil and air temperatures, stabilizing channel banks and interfluves, seed banking and trapping of silt and fine sediment favorable to the establishment of diverse floral and faunal species, and dissipating stream energy which aids in flood control (Howe et al. 2008).

Because almost all sites score a "D" for this metric (little to no vertical overlap of plant layers was observed), the Vertical Blotic Structure metric may have limited applicability for and, ophemeral streams. The metric has potential for being removed from the Biotic Structure Attribute. For example, this metric was eliminated from the CRAM Module for Vernal Pools because most vernal pools are characterized by very low growing vegetation and vertical overlap is not expected in these systems. However, desert riparian systems can be more structurally complex that those of the study area and higher scores for this metric could be expected. Therefore, additional CRAM assessments of and, ephemeral washes from other regions are necessary before any modifications are warranted.

## Integrating the Results of Multiple CRAM Assessments

The assessment of a large study area with multiple CRAM assessments requires some type of an integrated summary of the results. One way to interpert CRAM scores collected from the study site is to compare these to the regional distribution of comparable scores from an ambient survey of riverine wetlands. At this time, the only comparable data available are from the Stormwater Monitoring Coalition's (SMC) survey of wadeable, perennial streams in coastal southern California. In this example, the mean, maximum, and minimum CRAM scores from the project site are compared to the distribution of CRAM scores collected from SMC sites (Figure 7). Site 154 (the highest scoring site in the study area) is still above the 50° percentile for wadeable, perennial streams in the State. Because this approach to summarizing multiple CRAM assessments does not involve any averaging of scores, it avoids the attending difficulties in data interpretation. This approach has the added benefit of linking a site assessment to ambient conditions in a way that clearly illustrates the interdependence of the datasets. Ideally, CRAM scores from the study area should be compared with an ambient survey of other ephemeral drainages (which does not yet exist), thus this graph should be interpreted with caution. It is provided for illustrative purposes only as a way to present and interpret an integrated summary of CRAM scores in the context of an ambient assessment.

Figure 7. Mean (blue), maximum (Site 154; red), and minimum (Site 356; green) CRAM scores collected from the study site as viewed in context of a CRAM ambient survey of wadeable perennial streams in California.



## CONCLUSION AND NEXT STEPS

This technical report represents the first iteration of a workplan to develop assessment tools for ephemeral and or intermittent streams in arid regions of California. In summary, the results of this baseline study indicate that the theoretical construct of CRAM can be applied to arid, ephemeral streams, but certain metrics in the current Riverine Module will need to be recalibrated for these systems. The Landscape and Buffer Attribute can potentially apply to and systems as currently constructed. The Hydrology Attribute performs reasonably well for and systems, but some of the current indicators and field techniques will need to be revised in order to assess specific metrics. The Physical and Biolic Structure attributes were the two most problematic attributes to apply to a condition assessment of drainages in the study area. The metrics associated with these attributes will need to be reevaluated in more detail for application to arid, ephemeral drainages. It is anticipated that future studies will continue to inform on the refinement, modification, and validation of CRAM for these systems.

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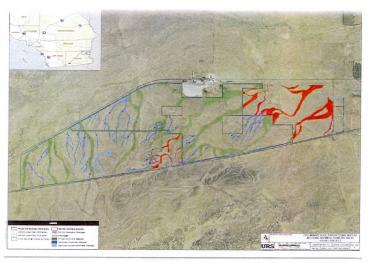
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Appendix 1. Spatial distribution and relative extent of ephemeral drainages within the study area. Drainages in red were outside of the study area.



Appendix 2. Number, location and length of ephemeral drainages within the study area

Ephemeral Drainage ID*		Township/Range/Section		Upstream Limit		Downstream Limit		Linear Distance (feet)	Acres	Cowardin Class
Primary	Secondary	Upstream Limit	Downstream Limit	Longitude	Lattitude	Longitude	Lattitude			
-		16S/10E/27	16S/10E/22	-115.939	32.747	-115,926	32.764	6,970	23.66	Streambed
j		16S/10E/27	16S/10E/22	-115.924	32 749	-115 931	32.757	4.210	10.69	Streambed
K		16S/10E/27	16S/10E/22	-115 919	32.75	-115 921	32.767	6.800	36.6	Streambed
	K1	16S/10E/22	16S/10E/22	-115.927	32.756	-115 922	32 763	3.000	4.92	Streambed
	K2	16S/10E/22	16S/10E/22	-115.924	32.76	-115.922	32.762	1,110	2.62	Streamber
Α.		16S/10E/26	16S/10E/22	-115.914	32.75	-115.919	32.768	7,225	24.88	Streambed
	В	16S/10E/23	169/10E/14	-115.913	32.76	-115.913	32 772	7.750	9.86	Streamber
С	-	16S/10E/26	16S/10E/14	-115.902	32 752	-115,908	32,774	8,650	40.25	Streember
<u> </u>	C1	16S/10E/23	16S/10E/14	-115.911	32 758	-115.908	32.772	6 220	12.24	Streamber
	C2	16S/10E/23	16S/10E/14	-115.903	32 765	-115.9	32 778	8.035	9.72	Streamber
	C3	16S/10E/23	16S/10E/14	-115.908	32.757	-115.906	32.769	6,870	13.26	Streamber
-	C4	16S/10E/26	16S/10E/23	-115.907	32.754	-115.904	32.76	4.990	7.11	Streamber
	C5	16S/10E/26	16S/10E/26	-115 904	32 751	-115.903	32.755	1.250	1.97	Streambe
D	1	16S/10E/25	16S/10F/12	-115.893	32 753	-115.884	32.787	13,700	74.73	Streambe
	D1	16S/10E/24	16S/10E/12	-115 895	32 766	-115.887	32.784	9,950	26.53	Streambe
	D2	16S/10E/24	16S/10E/13	-115.893	32 765	-115.888	32.782	12,750	28.59	Streambe
	D3	16S/10E/24	16S/10E/13	-115.89	32 765	-115.886	32.77	3,150	5.86	Streambe
F		16S/11E/19	16S/11E/09	-115.881	32.762	-115.831	32.789	23,700	198 94	Streambe
	E1	16S/11E/19	16S/11E/18	-115.88	32.764	-115.87	32.777	11,200	22.32	Streambe
	E2	16S/11E/18	16S/11E/17	-115.87	32.77	-115,864	32.772	2,000	2.44	Streambe
	E3	16S/11E/19	16S/11E/19	-115.881	32.761	-115.873	32.763	2.600	2.73	Streambe
	E4	16S/11E/19	16S/11E/19	-115,882	32 758	-115.878	32.76	1,950	1.57	Streambe
	E5	16S/10E/25	16S/11E/19	-115.888	32.754	-115,878	32.757	5,260	7.6	Streambe
F		16S/11E/20	16S/11E/16	-115.865	32.762	-115.839	32.78	10,500	104.08	Streambe
	FI	16S/11E/21	16S/11E/16	-115.842	32.767	-115.834	32.776	7.800	12.4	Streambe
	F2	16S/11E/20	16S/11E/20	-115.863	32.767	-115.858	32.769	2,400	4.62	Streambe
	F3	16S/11E/20	16S/11E/20	-115.865	32.764	-115.86	32.767	3.140	6.65	Streambe
G		16S/11E/20	16S/11E/15	-115.862	32.758	-115.826	32.776	17,600	115.44	Streambe
	GI GI	16S/11E/21	16S/11E/16	-115.84	32.765	-115.832	32.776	8.040	18.03	Streambe
	G2	16S/11E/21	16S/11E/15	-115.837	32.768	-115.829	32.776	4.475	9	Streambe
	G3	16S/11E/20	16S/11E/20	-115.865	32.758	-115.853	32.764	4,020	9.68	Streambe
н		16S/11E/22	16S/11E/22	-115.819	32 765	-115.817	32,767	970	7.4	Streambe
	SI	16S/10E/25	16S/10E/24	-115.899	32.754	-115.895	32.761	6.670	21.68	Streambe
	Total	1			-			224,955	878.07	

Appendix 3. List of sites assessed with CRAM. Note that the stream ID corresponds to the original jurisdictional delineation ID. Reach ID is the particular reach of stream that was assessed with CRAM.

Arid CRAM Assessment-Draft, June 2010

Appendix 4. CRAM Overall, attribute, and metric scores by site.

Appendix 5a. Location of CRAM assessment locations in the eastern portion of the study area (sites are denoted by numbered white circles). FIGUR



Overall Score Connectivity Hydrology Biotic Structure Physical Structure Score Phase 90.1 - 100.0 Not A Part Phase 1 80,1 - 90.0 Phase 2 70.1 - 80.0 Streambed 60.1 - 70.0 50.1 - 60.0 40.1 - 50.0 30.1 - 40.0 25.0 - 30.0

Appendix 6. Spatial distribution of overall CRAM Index and four Attribute scores collected at the study site from March 30-April 5, 2010.

Becky Schaffner beckys@sccwrp.org SCCWRP 2010

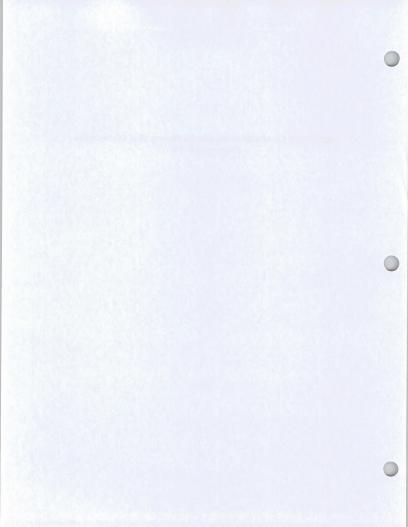
Appendix 7a: Physical patch types observed within the study area a) silt deposits, b) bank slump, c) animal burrows, d) wrack/organic debris in channel



Appendix 7b: Physical patch types observed within the study area a) depression in channel, b) point bar, c) standing snag, d) plant hummock, e) cobble



Attachment E - Additional Hydrology Reports that Evaluate the proposed LEDPA



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## COMPUTATION OF LOCAL SCOUR ON STREAMBED INDUCED BY SUNCATCHERS

Submitted to Ecosphere Environmental Services Durango, CO

Prepared by Howard H. Chang, Ph.D., P.E.

May 28, 2010

#### EXECUTIVE SUMMARY

SunCatchers will be installed in Washes A, D and F at the Solar Two project site in Imperil Valley, California. The pedestal supporting a SunCatcher induces local scour during the storm flow. Wash D is selected as the sample to determine the scour depths and stream bed surface areas affected by scour around the pedestals. A total of 465 SunCatchers will be installed in Wash D. The pedestals are 2 feet in diameter

The basic data on the hydraulics of flow were used to compute the depth of local scour as well as the area affected by scour using the equation recommended by the Federal Highway Administration given in Hydraulic Engineering Circular No. 18, FHWA, 2006. The computed results for Wash D are summarized below:

Maximum flow depth around pedestals = 1.27 feet
Maximum scour depth around pedestals = 2.97 feet
Range of scour depths around pedestals during peak 100-yr storm = 1.31 feet to 2.97 feet
Range of scour depths around pedestals at end of 100-yr storm= 0.66 feet to 1.49 feet

Maximum area affected by scour during peak 100-yr storm = 78.0 square feet Range of area affected by scour during peak 100-yr storm = 20.5 to 78.0 square feet Range of area affected by scour at end of 100-yr storm = 12.8 to 33.6 square feet

Average maximum scour area during peak 100-yr storm = 44.86 square feet Average area affected by scour at end of 100-yr storm = 21.87 square feet

Number of pedestals in Wash D = 465
Total maximum scour area = 44.86 x 465 = 20,860 square feet
Total scour area at end of storm 21.87 x 465 = 10.167 square feet
Land surface area of Wash D covered by 100-yr storm = 3,090,000 square feet
= 70.93 acres

Ratio of maximum scour area to total wash area = 0.00675 = 0.675% Ratio of scour area at end of storm to total wash area = 0.00329 = 0.329 %.

In summary, local scour will be induced by SunCatcher pedestals. The scour depth and area affected by scour have been determined based on the 100-yr storm. The scour depth and area affected by scour are the largest during the peak flow; they become partially refilled as the flow recedes. The total area affected by local scour around SunCatcher pedestals is less than one percent of the wash area.

#### I. INTRODUCTION

In alluvial streams, the scour around bridge piers, abutments, and other local obstructions is first initiated by the interference to flow and sediment transport. Figure 1 shows the local around a bridge pier taken soon after a storm flow. SunCatchers will be installed in Washes A and D and F at the Solar Two project site. The pedestal supporting a SunCatcher induces local scour during the storm flow.



Figure 1. Local scour around bridge pier

During a storm flow, local scour is first initiated by the pier's interference to flow and sediment transport as illustrate in Figure 2. The crodible bed deforms until it reaches an equilibrium scour configuration for which the rate of sediment supplied to the scour area is balanced by the rate of transport out of the area, that is,  $(Q_s)_m = (Q_s)_{out}$ . Sediment transport through a scour hole is also affected by the horseshoe vortices, which, as a turbulent motion, increase the particle mobility. The sediment rate is an inverse function of the particle size. Because sediment rates flowing into and out of a scour area change with the size, at nearly the same proportion, the scour depth is not significantly affected by the sediment size which is therefore missing in most formulas for local scour.

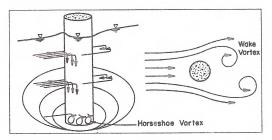


Figure 2. Interference to flow by a pier (After Federal Highway Administration, 2006)

The scour hole shaped like an inverted cone changes in size with the flow, it normally reaches the maximum during the peak flow and it becomes partially refilled during the receding stage of the storm flow.

Different formulas have been developed for predicting local scour around bridge piers. Despite the large number, such formulas contain a limited number of variables, namely, approach flow depth, effective pier width, Froude number, shear stress, and critical shear stress. The Federal Highway Administration (2006) recommends the CSU formula, which was also employed in this study

### II. PEDESTALS IN WASH D

For the project site, Wash C is totally avoided by SunCatchers in the wash, as are Washes I, K and portions of E and G in the current revised site plan. Washes A and D and F are impacted by placement of SunCatchers along their entire reach in the current and previously proposed plans. Wash D is selected as the sample to determine the depths and stream bed surface areas affected by the scour around the pedestals.

A total of 465 SunCatchers supported by pedestals will be installed in Wash D. The spacing between SunCatchers is 122 feet in the east-west direction and 58 feet between SunCatchers north to south.

The basic information on the hydraulics of flow in Wash D is required in order to compute the depth of local scour and the area affected by local scour. The hydraulic modeling study for the washes was prepared by Stantec Consulting, Inc. for Stirling Energy Systems, Inc. Figure 3 shows the layout of the channel cross sections used to define the stream channel geometry. A summary of the flow hydraulics for the 100-yr storm from the hydraulic study is listed in Table 1.

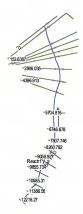


Figure 3. Location of channel cross sections for Wash D

Table 1. Summary of hydraulic parameters for Wash D

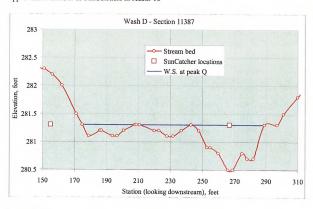
River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Vel Chnl Top Width Froude # (ft/s) (ft)	
12216.27	57.00	292.74	293.50	1.93 87.73 0.55	
11386.56	76.00	280.50	281.29	2.81 115.90 1.03	
10685.31	92.00	274.20	275.09	0.99 252.09 0.29	
9855.734	110.00	270.12	270.53	1.95 409.90 0.81	
9058.927	129.00	265.91	266.41	1.10 445.04 0.32	
8260.792	147.00	262.17	263.19	1.86 271.17 0.52	
7507.746	164.00	255.83	257.64	2.58 113.36 0.61	
6746.678	181.00	249.31	250.23	2.81 135.61 0.72	
5704.816	205.00	238.00	239.45	2.76 133.44 0.65	
4386.913	234.00	222.44	222.96	1.75 411.82 0.73	
3656.229	251.00	213.11	214.06	2.76 188.12 0.65	
2886.035	268.00	204.00	205.01	2.83 241.91 0.79	

2050.257	287.00	188.10	190.41	4.15 12	28.80	1.00
1765.222	294.00	184.99	186.25	1.67 4	07.21	0.45
1484.783	300.00	182.92	183.37	1.07 3	82.25	0.43
1183.998	307.00	179.68	180.28	2.86 3	66.07	0.96
153.6307	568.00	167.91	169.60	1.69 3	90.97	0.32
0	607.00	164.09	167.21	8.92 3	3.71	0.97

Important data for the channel cross sections are listed below. The water-surface elevation, surface width of flow, and the Froude number are from the hydraulic computations listed in Table 1. The channel sections are oriented primarily in the east-west direction. The number of SunCatchers that can be installed within the surface width of low at a channel section is determined based on the spacing between units along the direction of the channel cross section. The locations of SunCatchers at sample cross sections are shown in the cross-sectional profiles.

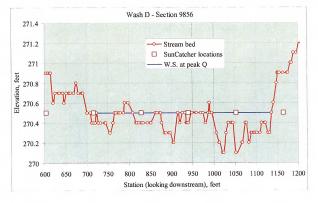
Each channel section is assumed to represent the channel reach centered at the section. The number of SunCatcher rows along the channel reach is the reach length divided by the spacing of 58 feet between the SunCatcher rows. The total number of SunCathers in a channel reach is estimated based on the number of SunCathers at the channel section multiplied by the number of SunCatcher rows. The total number of SunCatchers for Wash D is 465.

The local scour depth is directly related to the flow depth at the pedestal. To get the maximum local scour, it is assumed that one pedestal is located at the point with the largest depth at a channel section. Section 11387
Water-surface elevation for 100-yr storm: 281.3 feet
Surface width of flow: 115.9 feet
Number of SunCathers in wash: 1
Length of channel reach: 765.5 feet
Number of SunCatcher rows: 18
Approximate number of SunCatchers in reach: 18



Section 10685
Water-surface elevation for 100-yr storm: 275.1 feet
Surface width of flow: 252.1 feet
Number of SunCathers in wash: 2
Length of channel reach: 765 feet
Number of SunCatcher rows: 12
Approximate number of SunCatchers in reach: 24

Section 9856
Water-surface clevation for 100-yr storm: 270.5 feet
Surface width of flow: 409.9 feet
Number of SunCathers in wash: 3
Length of channel reach: 813 feet
Number of SunCather rows: 13
Approximate number of SunCatchers in reach: 39



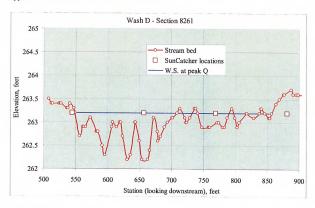
Section 9059

Water-surface elevation for 100-yr storm: 266.4 feet

Surface width of flow: 445.0 feet Number of SunCathers in wash: 3 Length of channel reach: 797 feet Number of SunCatcher rows: 14

Approximate number of SunCatchers in reach: 42

Section 8261
Water-surface clevation for 100-yr storm: 263.2 feet
Surface width of flow: 271.2 feet
Number of SunCathers in wash: 2
Length of channel reach: 775 feet
Number of SunCatcher rows: 13
Approximate number of SunCatchers in reach: 26

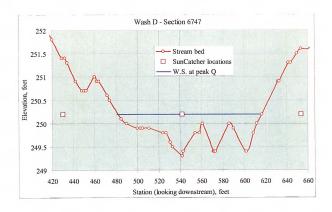


Section 7508
Water-surface elevation for 100-yr storm: 257.6 feet

Surface width of flow: 113.4 feet Number of SunCathers in wash: 1 Length of channel reach: 757 feet Number of SunCatcher rows: 12

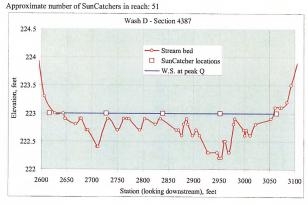
Approximate number of SunCatchers in reach: 12

Section 6747
Water-surface elevation for 100-yr storm: 250.2 feet
Surface width of flow: 133.6 feet
Number of SunCathers in wash: 2
Length of channel reach: 901 feet
Number of SunCather rows: 15
Approximate number of SunCatchers in reach: 30



Section 5705
Water-surface clevation for 100-yr storm: 239.5 feet
Surface width of flow: 133.4 feet
Number of SunCathers in wash: 2
Length of channel reach: 1180 feet
Number of SunCatcher rows: 20
Approximate number of SunCatchers in reach: 40

Section 4387
Water-surface elevation for 100-yr storm: 223.0 feet
Surface width of flow: 411.8 feet
Number of SunCathers in wash: 3
Length of channel reach: 1024 feet
Number of SunCather rows: 17

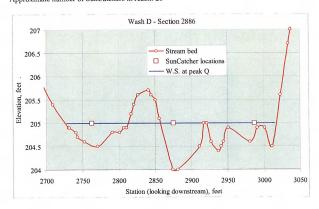


Section 3656
Water-surface elevation for 100-yr storm: 214.1 feet
Surface width of flow: 188.1 feet
Number of SunCathers in wash: 1
Length of Sampul seach: 751 feet

Number of SunCathers in wash: 1 Length of channel reach: 751 feet Number of SunCatcher rows: 13

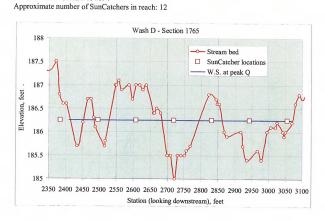
Approximate number of SunCatchers in reach: 13

Section 2886
Water-surface elevation for 100-yr storm: 205.0 feet
Surface width of flow: 241.9 feet
Number of SunCathers in wash: 2
Length of channel reach: 803 feet
Number of SunCatcher rows: 14
Approximate number of SunCatchers in reach: 28



Section 2050
Water-surface elevation for 100-yr storm: 190.4 feet
Surface width of flow: 129 feet
Number of SunCathers in wash: 1
Length of channel reach: 500 feet
Number of SunCatcher rows: 9
Approximate number of SunCat

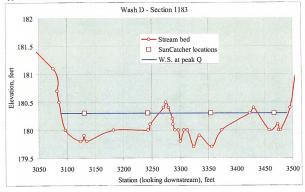
Section 1765
Water-surface elevation for 100-yr storm: 186.3 feet
Surface width of flow: 407.2 feet
Number of SunCathers in wash: 3
Length of channel reach: 283 feet
Number of SunCather rows: 4



Section 1484.8
Water-surface elevation for 100-yr storm: 183.4 feet
Surface width of flow: 382.3 feet
Number of SunCathers in wash: 4
Length of channel reach: 290.6 feet
Number of SunCatcher rows: 5
Approximate number of SunCatchers in reach: 20

Section 1183.9 Water-surface elevation for 100-yr storm: 180.28 Surface width of flow: 366.1 feet Number of SunCathers in wash: 4 Length of channel reach: 665 feet Number of SunCatcher rows: 665/58 = 11.5

Approximate number of SunCatchers in reach: 11.5 x 4 = 66



Section 154 Water-surface elevation for 100-yr storm: 169.6 Surface width of flow: 391 feet Number of SunCathers in wash: 3 Length of channel reach: 591 feet Number of SunCatcher rows: 10 Approximate number of SunCatchers in reach: 30

### III. COMPUTATION OF LOCAL SCOUR AROUND PEDESTALS IN WASH D

Local Scour at Bridge Piers/Bents - The magnitude of local scour around a pedestal may be estimated using certain established formulas. The Federal Highway Administration has adopted the following equation (see Hydraulic Engineering Circular No. 18, FHWA, 2006) for round-nosed piers/bents or cylindrical piers/bents.

$$Y_s/Y_1 = 2.0 K_1 K_2 (b/Y_1)^{0.65} F^{0.43}$$
 (1)

where Y = depth of local scour measured from the mean bed elevation, in feet;

K<sub>1</sub> = correction for pier/bent nose shape, equal to 1 for circular piers/bents and 1.1 for rectangular piers/bents;

K<sub>2</sub> = correction factor for angle of attack, equal to 1 for zero skew;

b = projected pier/bent width;

 $Y_1$  = approach flow depth;

 $F = Froude number = V//gY_1$ ; and

V = velocity of approach flow.

Local scour depths and areas affected by local scour were computed for the sample cross sections shown above. The required hydraulic data used in the computation are from the listed values in Table 1. The local depths of flow at the individual pedestals are shown in the figures for the sample cross sections.

The depths of local scour at the pedestals were computed using Equation 1. The computation for the area affected by scour is illustrated by the numerical example given below for the assumed local scour depth of 2.9 feet. The angle of repose for the bed material is assumed to be 36 degrees and the pedestal diameter is 2 feet.

For the scour depth of 2.9 feet and angle of repose of 36 degrees: Horizontal distance due to the scour depth =  $2.9/\tan 36 = 3.99$  feet Radius of scour hole measured from the center of pedestal = 1 + 3.99 = 4.99 Diameter of pedestal = 2 feet Cross-sectional area of pedestal = 3.14 square feet Area of scour hole =  $3.14 \times 4.99^2 - 3.14 = 78.18 - 3.14 = 75.0$  square feet

The depth of scour is directly related to the depth of flow. For this reason, the maximum scour occurs near the peak flow and it gets partially refilled during the falling stage of the storm flow. The scour hole becomes smaller at the end of the storm. It is assumed that the scour depth is 50% refilled toward the end of the storm follow; the area affected by scour decreases with the depth of scour. The hydraulic parameters together with the computed results for scour depths and areas affected by scour are summarized in Table 2 below:

Table 2. Summary of hydraulic parameters and computed results for local sour.

Section . No. Number	Froude Number	Local Flow Depth	Maximum Scour Depth	Maximum Scour Area	Final Scour Area
11387	1.03	0.82	2.97	78.0	33.6
9856	0.81	0.26	1.79	34.5	18.2
9856	0.81	0.26	1.79	34.5	18.2
9856	0.81	0.26	1.79	34.5	18.2
9856	0.81	1.03	2.90	75.0	32.6
8261	0.52	1.03	2.39	54.8	25.6
8261	0.52	0.19	1.32	21.9	13.3
6747	0.72	0.87	2.60	62.6	28.3
4387	0.73	0.12	1.31	21.4	13.1
4387	0.73	0.15	1.41	24.1	14.2
4387	0.73	0.79	2.52	59.8	27.3
2886	0.79	0.45	2.14	45.9	22.4
2886	0.79	1.03	2.87	73.7	32.1
2886	0.79	0.27	1.79	34.7	18.3
1765	0.45	0.26	1.39	23.5	14.0
1765	0.45	1.27	2.42	55.8	26.0
1765	0.45	0.77	2.03	42.2	21.1
1765	0.45	0.20	1.27	20.5	12.8
1183	0.96	0.40	2.24	49.2	23.6
1183	0.96	0.30	2.02	41.9	21.0
1183	0.96	0.58	2.55	60.7	27.7
1183	0.96	0.25	1.90	37.9	19.5

Summary of Computed Results – The computed results for Wash D are summarized below:

Maximum flow depth around pedestals = 1.27 feet
Maximum scour depth around pedestals = 2.97 feet
Range of scour depths around pedestals during peak 100-yr storm = 1.31 feet to 2.97 feet
Range of scour depths around pedestals at end of 100-yr storm= 0.66 feet to 1.49 feet

Maximum area affected by scour during peak 100-yr storm= 78.0 square feet Range of area affected by scour during peak 100-yr storm= 20.5 to 78.0 square feet Range of area affected by scour at end of 100-yr storm= 12.8 to 33.6 square feet

Average maximum scour area during peak 100-yr storm = 44.86 square feet Average area affected by scour at end of 100-yr storm = 21.87 square feet

Number of pedestals in Wash D = 465
Total maximum scour area = 44.86 x 465 = 20,860 square feet
Total scour area at end of storm 21.87 x 465 = 10.167 square feet
Land surface area of Wash D covered by 100-yr storm = 3,090,000 square feet
= 70.93 acres

Ratio of maximum scour area to total wash area = 0.00675 = 0.675%Ratio of end of storm scour area to total wash area = 0.00329 = 0.329%

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# Evaluation of Engineering Impacts of Revised Plan of Development, Site Plan, and Fencing Design for Solar 2 Site and Recommendations for Impact Mitigation

Submitted to

Mike Fitzgerald
Principal
Ecosphere Environmental Services
Durango, CO

Prepared by Howard H. Chang, Ph.D., P.E.

May 19, 2010

### EXECUTIVE SUMMARY

Ecosphere Environmental Services has revised the original Plan of Development (POD) for the Solar Two project site in Imperial Valley. The revised POD as shown in Figure 1 has the following major features:

The original solar energy project site is expanded to the north of the transmission corridor along Washes E, F, and G.
 The detailed placement of the solar catchers is shown the site plan. Many such units are

located in washes.

(3) Within each generator group, the solar catchers are connected by maintenance roads, which are at grade and unpaved.

(4) All sediment basins have been removed.

(5) All road crossings are Arizona at grade crossings with the exception of 2 "life line" road crossings. The two "life line" road crossings will either remain culvert crossings or, more likely, a precast concrete arched culvert system (like a bridge); and vegetation clearing is minimized (approach described in revised POD).

(6) The project site will be surrounded by a fence.

The hydraulics of storm flow, sediment transport and potential stream channel changes along several representative washes at the project site were modeled in my previous study for the project. The flow depths in the washes at the peak 100-yr flood were determined to be generally less than 1 foot. The velocities at the 100-yr peak flood discharge vary from low to moderate; they are generally lower than 3 feet per second. From the sediment modeling study, it was determined that these washes are not subject to substantial changes in channel bed profiles for the existing and proposed conditions. Because of these findings, it was decided that the solar catchers may be placed in the washes.

The solar units are supported on 2-foot cylindrical pedestals. For a pedestal in a wash, the maximum scour, including general scour and local scour, was determined be no greater than 5 feet. According to the structural design, the pedestals are imbedded into the ground for a length of 17 feet. Such a footing design is considered adequate to safeguard the structure against potential scour.

The revised POD was also evaluated in consideration of the necessary mitigation measures that I recommended previously. The sediment study provides an assessment of whether the project is likely to increase or decrease sediment delivery toward downstream. In order to minimize the impacts, the project should cause no substantial changes to the sediment delivery. Sediment impacts are mitigated by the following measures incorporated in the POD:

- Deletion of all sediment basins.
- (2) Modification of Lifeline Crossing in Wash G.
- (3) Set-back of at least 100 feet for the solar units along the base of the hills.

In summary, the revised POD has incorporated measures to comply with my recommendations made for the project site in order to mitigate the project impacts. The revised POD has also provided necessary design feature for the pedestals of solar catchers located in washes for scour protection. In consideration of these points, the revised POD meets the requirements stated in my previous studies for the project site.

#### I. INTRODUCTION

The proposed Solar Two Project is on the Bureau of Land Management property south of Plaster City in Imperial County, California. The Evan Hewes Highway is the north boundary and Interstate 8 is the south boundary of the project site. Hydrology of surface water runoff plays a key role in the desert ecosystem of the southwestern United States. For this reason, many environmental issues for the project must be analyzed from the perspective of hydrology. As a consultant, I provided studies of hydrologic impacts as well as sediment studies for the project site. Mitigation measures for project impacts have also been recommended.

Ecosphere Environmental Services has revised the original Plan of Development (POD) for the project site. Figure 1 is a wash impact avoidance/minimization site plan that Ecosphere Environmental Services have been working with the Corps and IPA on to finalize as the least environmentally damaging practicable alternative (LEDPA). The revised POD was developed in consideration of my previous recommendations. The revised POD as shown in the figure has the following major features:

- (1) The project site is crossed by a transmission line. The original solar energy project site was south of the transmission line. It is now extended to the north of the transmission corridor along Washes E, F, and G.
- (2) The detailed placement of solar catchers is shown the POD. Many such units are located in washes.
- (3) Within each generator group, the solar catchers are connected by maintenance roads, which are at grade and unpaved.
- (4) All sediment basins have been removed.
- (5) All road crossings are Arizona at grade crossings with the exception of 2 "life line" road crossings. The two "life line" road crossings will either remain culvert crossings or, more likely, a precast concrete arched culvert system (like a bridge); and vegetation clearing is minimized (approach described in revised POD).
- (6) The project site will be surrounded by a fence.

This report has been prepared to provide a qualitative assessment of potential engineering impacts of the revised POD for the Solar Two Energy Project site. In connection with the review and evaluation, a one-day site visit was made on May 10, 2010. This report covers the following major items:

- (1) Review and comment on revised Plan of Development (POD) and site plan The consultant made a hydrology and sediment study for the solar energy site. In connection with the study, specific recommendations were also made for project impact mitigation. The consultant has reviewed the revised POD and site pan to insure recommendations are fulfilled. Necessary changes, if any, to the POD and site plan are specified.
- (2) Review the fencing design and make design recommendations The perimeter fencing is along the entire border of the project site. It will cross ephemeral drainages. The fencing design has potential impacts on surface water flow and sediment transport. The EPA is concerned about obstructing natural flows and the resulting effects of sediment transfer. Such potential impacts will be evaluated and specific recommendations will be made for the purpose of impact mitigation.

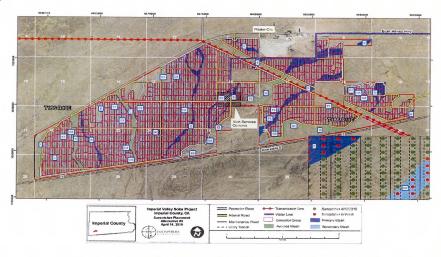


Figure 1. Revised Plan of Development (POD) site plan by Ecosphere Environmental Services

#### II. COMMENT ON THE REVISED PLAN OF DEVELOPMENT

Storm flows in the desert generally occur as flash floods with the discharge rising and falling rapidly. The hydraulics of storm flow, sediment transport and potential stream channel changes along several representative washes at the project site were modeled in my previous study for the project. The flow depths in the washes at the peak 100-yr flood were determined to be generally less than 1 foot. The velocities at the peak flood discharge vary from low to moderate; they are generally lower than 3 feet per second. From the sediment modeling study, it was determined that these washes are not subject to substantial changes in channel bed profiles for the existing and proposed conditions. Changes in bed elevation due to general scour are less than 1 foot during the 100-yr flood. Such changes are even less during the 10-yr flood. Because of these findings, it was decided that the solar catchers may be placed in the washes.

The solar units are supported on 2-foot cylindrical pedestals. For a pedestal in a wash, the total scour is the general scour plus the local scour at the pedestal base. The maximum local scour that occurs under the worst combination of flow depth and flow velocity has been computed to be 4.2 feet during the 100-yr flood. The maximum scour, including general scour and local scour, was determined be no greater than 5 feet. According to the structural design, the pedestals are imbedded into the ground for a length of 17 feet. Such a footing design is considered adequate to safeguard the structure against potential scour.

As a first step, the revised POD was evaluated in consideration of the necessary mitigation measures that I recommended previously. The sediment study provides representative sediment transport modeling to assess potential stream channel changes as well as an assessment of whether the project is likely to increase or decrease sediment delivery toward downstream. It is necessary to determine consequences of increased or decreased sediment delivery downstream. Possible consequences could include excess sediment deposition upstream of the existing railroad and culvert crossings along the north side of the project, or excess sediment delivery toward the east and the Westside Main Canal, or downstream channel degradation affecting existing infrastructure and channel morphology. In order to minimize the impacts, the project should cause no substantial changes to the sediment delivery. Otherwise, adverse impacts should be mitigated.

Sediment impacts may be mitigated by different methods. Basically, the road crossings, sediment basins, culverts, vegetation, buildings, etc. all affect sediment transport. In order to mitigate adverse impacts, modifications to these structures are considered. Based on the results of this study, the following mitigations for project impacts were recommended:

- (3) Deletion of all sediment basins The study has shown that the sediment basins will have short-term and long-term effects in reducing sediment flow along a wash and toward downstream. It is recommended all sediment basins be deleted from the proposed plan.
- (4) Modification of Lifeline Crossing in Wash G Under the original proposed plan, the 24-foot Lifeline Crossing has five 3-foot culverts for cross drainage. The top of roadway is about 5 feet above the channel bed elevation. This road crossing together with the two adjacent sediment basins will have major effects in reducing sediment flow along the stream channel. It is recommended that this crossing be changed into an at-grade road

crossing with all the culverts removed. Another alternative is to replace the road crossing with a large culvert or a small bridge that does not interfere with the flow.

## (5) Set-back of at least 100 feet for the solar units along the base of the hills.

The first two items are now incorporated in the revised POD. For the third item, the most significant hills are located in the southern part of Basin E just north of Interstate 8. There are small streams coming out of the steep hillside. Alluvial fan formation at the base of the hills is possible. However, these small steep streams have very small watersheds. For this reason, there can be no major flow to cause large alluvial fan formation in this area of the project site. To insure safety of the solar units, it was recommended that a minimum setback of 100 feet be applied to the units along base of the hills. In the exhibit shown in Figure 2 below, the blue line marks the setback limit. Solar units should stay outside the boundary enclosing the hills. The recommended area of exclusion is from the consideration of hydrology. The revised POD complies with this recommendation.

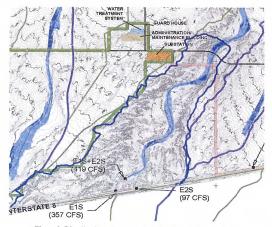


Figure 2. Blue line boundary to exclude inside area for solar units

### II. AREAS IN REVISED POD NOT COVERED IN PREVIOUS STUDIES

The revised POD consists of areas for the Solar Two project that are not covered in my previous studies. Such areas are located north of the transmission line and south of Evan Hewes Highway. As shown in Figure 1, these areas are drained by three major washes E, F, and G and several smaller ones. In order to assess the hydrologic impacts on the solar units without any quantitative evaluation, these reaches are compared with their upper reaches south of the transmission line that have been evaluated previously.

Field inspections were made on May 10, 2010 of the washes north the of transmission corridor. Pictures of these washes are shown in Figures 3 for Wash E, in Figure 4 for Wash F, and in Figure 5 for Wash G. These washes are on flat terrains with wide and shallow channels. These lower reaches are generally flatter and wider than the upper reaches south of the transmission corridor.

Storm flows in the desert generally occur as flash floods with the discharge rising and falling rapidly. The flow depths in the washes at the peak 100-yr flood have been determined to be generally less than 1 foot. The velocities at the peak flood discharge vary from low to moderate; they are generally lower than 3 feet per second.

From the sediment modeling study, it was determined that these washes are not subject to substantial changes in channel bed profiles for the existing and proposed conditions. Changes in bed elevation due to general scour are less than 1 foot during the 100-yr flood. Such changes are even less during the 10-yr flood. The solar units are supported on 2-foot cylindrical pedestals. For a pedestal in a wash, the total scour is the general scour plus the local scour at the pedestal base. The maximum local scour that occurs under the worst combination of flow depth and flow velocity has been computed to be 4.2 feet during the 100-yr flood. In view of the stream morphology, the lower wash reaches have slightly lower flow velocities and hence present no significant potential hazard for solar units.





Figure 3. Views of Wash E from the transmission corridor. The upper picture is a view of Wash E toward upstream. The lower picture is a view of Wash E toward downstream.





Figure 4. Views of Wash F from the transmission corridor. The upper picture is a view of Wash F toward upstream. The lower picture is a view of Wash F toward downstream.





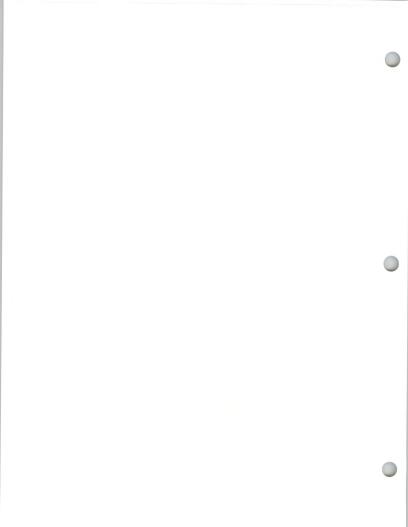
Figure 5. Views of Wash G from the transmission corridor.
The upper picture is a view of Wash G toward south.
The lower picture is a view of Wash G toward downstream.

#### III BORDER FENCE DESIGN RECOMMENDATIONS

A fence surrounding the entire project site has been planned. The conceptual design of the fence has not been provided, but it is believed to be tall enough to prevent human passage. It may be a fence with horizontal and vertical steel bars, or a chain link fence. In order to protect the project site, the fence should not allow human passage. The fence will cross certain washes. Depending on the design, the fence may have impacts on surface water flow and sediment transport in the washes.

In order to avoid impacts on the flow and sediment transport, the following features are recommended for fence design:

- The steel bar fence is less likely to capture debris carried by the flow, and hence it is considered more desirable than the chain link fence.
- (2) At a wash crossing, the bottom of the fence should maintain a clearance of 1 about foot from the stream bed. The 1-foot clearance will pass the 100-yr storm with minimum interference since the flow depth of the 100-yr storm has been determined be about 1 foot.
- (3) At a wash crossing, the vertical bars of the fence should maintain a span of at least 8 feet. The vertical bars interfere with the surface water flow. Major interference to flow can be avoided if the spacing between two adjacent bars is at least 8 feet.



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Evaluation of Engineering Impacts of Revised Plan of Development, Site Plan, and Fencing Design for Solar 2 Site and Recommendations for Impact Mitigation

Submitted to
Ecosphere Environmental Services
Durango, CO

Prepared by Howard H. Chang, Ph.D., P.E.

MACCON

May 25, 2010

#### EXECUTIVE SUMMARY

Ecosphere Environmental Services has revised the original Plan of Development (POD) for the Solar Two project site in Imperial Valley. The revised POD as shown in Figure 1 has the following major features:

- (1) The original solar energy project site is expanded to the north of the transmission corridor along Washes E, F, and G.
- (2) The detailed placement of the solar catchers is shown the site plan. Many such units are located in washes.
- (3) Within each generator group, the solar catchers are connected by maintenance roads, which are at grade and unpayed.
- (4) All sediment basins have been removed.
- (5) All road crossings are Arizona at grade crossings with the exception of 2 "life line" road crossings. The two "life line" road crossings will either remain culvert crossings or, more likely, a precast concrete arched culvert system (like a bridge); and vegetation clearing is minimized (approach described in revised POD).
- (6) The project site will be surrounded by a fence.

The hydraulics of storm flow, sediment transport and potential stream channel changes along several representative washes at the project site were modeled in my previous study for the project. The flow depths in the washes at the peak 100-yr flood were determined to be generally less than 1 foot. The velocities at the 100-yr peak flood discharge vary from low to moderate; they are generally lower than 3 feet per second. From the sediment modeling study, it was determined that these washes are not subject to substantial changes in channel bed profiles for the existing and proposed conditions. Because of these findings, it was decided that the solar catchers may be placed in the washes.

The solar units are supported on 2-foot cylindrical pedestals. For a pedestal in a wash, the maximum scour, including general scour and local scour, was determined be no greater than 5 feet. According to the structural design, the pedestals are imbedded into the ground for a length of 17 feet. Such a footing design is considered adequate to safeguard the structure against potential scour.

The revised POD was also evaluated in consideration of the necessary mitigation measures that I recommended previously. The sediment study provides an assessment of whether the project is likely to increase or decrease sediment delivery toward downstream. In order to minimize the impacts, the project should cause no substantial changes to the sediment delivery. Sediment impacts are mitigated by the following measures incorporated in the POD:

- (1) Deletion of all sediment basins.
- (2) Modification of Lifeline Crossing in Wash G.
- (3) Set-back of at least 100 feet for the solar units along the base of the hills.

In summary, the revised POD has incorporated measures to comply with my recommendations made for the project site in order to mitigate the project impacts. The revised POD has also provided necessary design feature for the pedestals of solar catchers located in washes for scour protection. In consideration of these points, the revised POD meets the requirements stated in my previous studies for the project site.

#### I. INTRODUCTION

The proposed Solar Two Project is on the Bureau of Land Management property south of Plaster City in Imperial County, California. The Evan Hewes Highway is the north boundary and Interstate 8 is the south boundary of the project site. Hydrology of surface water runoff plays a key role in the desert ecosystem of the southwestern United States. For this reason, many environmental issues for the project must be analyzed from the perspective of hydrology. As a consultant, I provided studies of hydrologic impacts as well as sediment studies for the project site. Mitigation measures for project impacts have also been recommended.

Ecosphere Environmental Services developed the initial Plan of Development (POD) as shown in Figure 1a. The plan has since been revised and the revised POD is shown in Figure 1b. The major differences between the two PODs is the moved Main Services Complex and the SunCatchers that had to move to accommodate the complex to the north of its location below. Figures 1a and 1b provide the wash impact avoidance/minimization site plan that Ecosphere Environmental Services have been working with the Corps and EPA on to finalize as the least environmentally damaging practicable alternative (LEDPA). The revised POD was developed in consideration of previous recommendations. The revised POD as shown in the figure has the following major features:

(1) The project site is crossed by a transmission line. The original solar energy project site

- was south of the transmission line. It is now extended to the north of the transmission corridor along Washes E, F, and G.
- (2) The detailed placement of solar catchers is shown the POD. Many such units are located in washes.
- (3) Within each generator group, the solar catchers are connected by maintenance roads, which are at grade and unpaved.
- (4) All sediment basins have been removed.
- (5) All road crossings are Arizona at grade crossings with the exception of 2 "life line" road crossings. The two "life line" road crossings will either remain culvert crossings or, more likely, a precast concrete arched culvert system (like a bridge); and vegetation clearing is minimized (approach described in revised POD).
- (6) The project site will be surrounded by a fence.

This report has been prepared to provide a qualitative assessment of potential engineering impacts of the revised POD for the Solar Two Energy Project site. In connection with the review and evaluation, a one-day site visit was made on May 10, 2010. This report covers the following major items:

- (1) Review and comment on revised Plan of Development (POD) and site plan The consultant made a hydrology and sediment study for the solar energy site. In connection with the study, specific recommendations were also made for project impact mitigation. The consultant has reviewed the revised POD and site pan to insure recommendations are fulfilled. Necessary changes, if any, to the POD and site plan are specified.
- (2) Review the fencing design and make design recommendations The perimeter fencing is along the entire border of the project site. It will cross ephemeral drainages. The fencing design has potential impacts on surface water flow and sediment transport. The EPA is concerned about obstructing natural flows and the resulting effects of sediment transfer. Such potential impacts will be evaluated and specific recommendations will be made for the purpose of impact mitigation.

Figure 1a. Initial Plan of Development (POD) site plan by Ecosphere Environmental Services

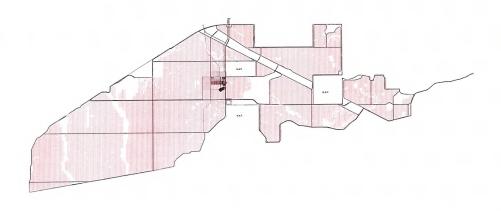


Figure 1b. Revised Plan of Development (POD) site plan by Ecosphere Environmental Services

# II. COMMENT ON THE REVISED PLAN OF DEVELOPMENT

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Sediment impacts may be mitigated by different methods. Basically, the road crossings, sediment basins, culverts, vegetation, buildings, etc. all affect sediment transport. In order to mitigate adverse impacts, modifications to these structures are considered. Based on the results of this study, the following mitigations for project impacts were recommended:

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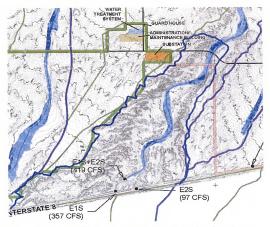


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# II. AREAS IN REVISED POD NOT COVERED IN PREVIOUS STUDIES

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Field inspections were made on May 10, 2010 of the washes north the of transmission corridor. Pictures of these washes are shown in Figures 3 for Wash E, in Figure 4 for Wash F, and in Figure 5 for Wash G. These washes are on flat terrains with wide and shallow channels. These lower reaches are generally flatter and wider than the upper reaches south of the transmission corridor.

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Figure 3. Views of Wash E from the transmission corridor. The upper picture is a view of Wash E toward upstream. The lower picture is a view of Wash E toward downstream.





Figure 4. Views of Wash F from the transmission corridor. The upper picture is a view of Wash F toward upstream. The lower picture is a view of Wash F toward downstream.





Figure 5. Views of Wash G from the transmission corridor.
The upper picture is a view of Wash G toward south.
The lower picture is a view of Wash G toward downstream.

# III. BORDER FENCE DESIGN RECOMMENDATIONS

A fence surrounding the entire project site has been planned. The conceptual design of the fence has not been provided, but it is believed to be tall enough to prevent human passage. It may be a fence with horizontal and vertical steel bars, or a chain link fence. In order to protect the project site, the fence should not allow human passage. The fence will cross certain washes. Depending on the design, the fence may have impacts on surface water flow and sediment transport in the washes.

In order to avoid impacts on the flow and sediment transport, the following features are recommended for fence design:

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- (3) At a wash crossing, the vertical bars of the fence should maintain a span of at least 8 feet. The vertical bars interfere with the surface water flow. Major interference to flow can be avoided if the spacing between two adjacent bars is at least 8 feet.

United States Army Corps of Engineers Responses to Environmental Comments on the Public Notice for the Imperial Valley Project

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# U.S. ARMY CORPS OF ENGINEERS RESPONSES TO ENVIRONMENTAL COMMENTS ON PUBLIC NOTICE FOR IMPERIAL VALLEY SOLAR PROJECT

In connection with its Imperial Valley Solar (IVS) Project, Tessera Solar North America (TSNA) has applied to discharge fill material into waters of the U.S. under Section 404 of the Clean Water Act (CWA). The U.S. Army Corps of Engineers (Corps) received nine comment letters in response to its March 2010 Public Notice (PN) of TSNA's application. The comments have been reviewed and, to the extent possible, been addressed in the project design through design modification or in the development of minimization and mitigation measures in coordination with other resource agencies. Those that could not be addressed in this way have been addressed in the analysis contained in the Final Environmental Impact Statement (FEIS) or responded to in this document by topic type. In addition, the Corps has completed a draft alternatives analysis in compliance with the CWA Section 404(b)(1) guidelines. The Draft 404(b)(1) alternatives analysis has also been included as Appendix H to the FEIS for IVS Project.

The comments on the Corps PN address the 750-MW proposed project before the preliminary least environmentally damaging practicable alternative (LEDPA) was identified and other refinements were made. Accordingly, the responses below both address the comments as written and identify any post-PN project refinements that are relevant to the subject matter of the comments.

The comments received by the Corps have been designated as follows.

Code	Organization	Author	Date	Pages
A	EPA	Alexis Strauss	12 May 2010	2
A1	EPA	Jared Blumenfeld	7 June 2010	2
В	FEMA	Gregor Blackburn	24 March 2010	2
C	CBD	Lisa Belenky	11 May 2010	5
D	CURE	Loulena Miles	12 May 2010	34
D1	CURE	Exhibit I - Bowles / Campbell	12 May 2010	22
D2	CURE	Exhibit U – Cashen Comments	12 May 2010	7
D3	CURE	Exhibit V – Bleich Comments	12 May 2010	9
E	None	Edie Harmon	12 May 2010	32

#### I. RESPONSES TO COMMENTS

#### A. General

#### Public Notice

The Corps posted the original PN for the IVS Project to the Los Angeles District, Regulatory Division website with a comment period from March 15 to April 14, 2010. The original PN was also mailed directly to over 400 adjacent property owners and mailed electronically to the individuals and companies on the Corps' General, San Diego, and Southeastern California distribution lists. The U.S. Environmental Protection Agency (EPA) requested that the Corps extend the comment period to May 5, 2010 so that their Environmental Review Office (ERO). including the Communities Ecosystem Division, could adequately coordinate comments for both the Corps PN and the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS). The Corps granted this extension immediately. The Corps received a letter on behalf of the California Unions for Reliable Energy (CURE) on April 12, 2010 and subsequent e-mails from the Center for Biological Diversity (CBD) requesting an extension to the comment period. In response, the Corps redistributed the PN to correct the Corps Application Number listed in two places on the PN itself. The Corps Application Number on the website link was correct, as well as the contact information for the San Diego office and the Project Manager; comments and phone calls had already been received from the public in response to the original PN. However, to ensure that any confusing details were clarified and to give CURE and CBD adequate time to prepare comments, the Corps reposted the PN to the website and redistributed the PN electronically to the same three Corps' distribution lists for an additional 15-day comment period.

Comment Letter D states five reasons that the Corps should renotice and extend the public comment period, referencing 33 CFR 325.2(d)(2). 33 CFR 325.2(d)(2) states the following: "Before designating comment periods less than 30 days, the district engineer will consider: (i) Whether the proposal is routine or noncontroversial, (ii) mail time and need for comments from remote areas, (iii) comments from similar proposals, and (iv) the need for a site visit. After considering the length of the original comment period, paragraphs (d2)(i) through d(2)(iv) above, and other pertinent factors, the district engineer may extend the comment period up to an additional 30 days if warranted." The Corps did not designate a comment period of less than 30 days. On the contrary, the Corps did fully consider 33 CFR 325.2(d)(2) (i) through (iv) in its decision to extend the comment period. The comment period closed May 12, 2010, for a total comment period of 58 calendar days (March 15 through May 12, 2010). Therefore, the Corps extended the 30-day comment period by 28 additional calendar days thereby allowing additional time for public comment and review.

One comment in Letter D expresses concern that the PN provided inadequate information related to proposed project's effects to waters of the U.S. The Corps' position is that the information provided in the PN adequately describes the information contained in the permit application and the extent of the waters of the U.S. on the project site. Another comment in this letter expresses concern about the project and applicant name change. The CWA Section 404 permit application signed by the applicant on November 4, 2009 includes "Imperial Valley Solar Project" under "Project Name or Title" and lists "Tessera Solar North America" as the "Applicant's Name." The PN, therefore, was issued using the project and applicant names as submitted on the permit application. Another expressed concern in Letter D is that the project title on the Corps' PN

webpage is misleading. The title of the project was inadvertently cut off on the PN main webpage because only a specific number of characters can fit under "Project" on the Corps' Los Angeles District PN webpage; however the project title on the webpage did include the applicant's name, Tessera Solar North America (TSNA), as listed on the Corps' permit application. The Corps' position is that the PN for the IVS Project was adequately distributed to the public.

# **Project Modifications**

The proposed action, as analyzed in the SA/DEIS prepared by the California Energy Commission (CEC) and the Bureau of Land Management (BLM), and as described in the PN, was designed to reduce environmental impacts compared to TSNA's original proposal. The original proposal, identified after consultation with BLM, was for a 900-MW facility on approximately 7,600 acres of land. (See Draft 404(b)(1) Alternatives Analysis, Maximum Energy Generation Alternative.) After environmental review began, TSNA reduced its proposed project to a 750-MW, 6,500-acre project, primarily to reduce impacts on cultural resources; impacts on waters of the U.S. were also reduced by the reduction in project acreage.

The environmental impacts of the resulting 750-MW proposal were analyzed in the SA/DEIS, during the siting process at the CEC, in the supplemental analyses, appendices, testimony by the applicant, staff, intervenors and the public, and in public hearings. As a result of this environmental analysis and close coordination with the Corps, a variety of avoidance in minimization measures, including substantial modifications to the 750-MW project were developed by the Applicant to further reduce impacts.

Impacts to waters of the U.S. have been further reduced by the Applicant as a result of modification of aspects of the project to identify the preliminary LEDPA in accordance with EPA's section 404(b)(1) Guidelines. As modified, the proposed project would now provide approximately 709 MW rather than 750 MW of generating capacity and a commensurate reduction in installed SunCatchers. The revised project would not place SunCatchers or maintenance roads in jurisdictional washes C, H, I, or K, or in large portions of washes E and G. These modifications reduce the project's impacts on the highest-flow aquatic resources and reduce the project's impacts on waters of the U.S. to 38.2 acres of permanent impacts and 14.0 acres of temporary impacts, described in detail as follows:

- 1. Reduced total generating capacity from 750 MW to 709 MW allowing for the complete avoidance of ephemeral main-stem streams H, I, K, and C, as well as complete avoidance of the majority of stream G and the upper half of stream E. This removed 1,163 SunCatchers from waters of the U.S. and reduced permanent impacts from 177.4 acres to 38.2 acres. The streams chosen by the Applicant for avoidance were based primarily on flow characteristics, but also on the Corps qualitative evaluation of the stream condition in the field prior to the California Rapid Assessment Method (CRAM) analysis. The Corps qualitative evaluation was substantiated by the CRAM analysis since 4 of the 6 main-stem streams avoided as part of this alternative are among the highest scoring. The only high scoring stream not avoided in this alternative is D, as it is located in the approximate center of the project site flowing from south to north.
- SunCatchers were removed from 200-foot corridors in the northern sections of ephemeral main-stem streams E and G. This reduced the number of SunCatchers in waters of the

U.S. by 228. These corridors combined with the complete avoidance of the streams south of the transmission corridor provide unobstructed hydrologic and sediment transport and flat-tailed horned lizard (FTHL) with clear routes to travel across the proposed project area.

- Reduced the number of the east-west roads to minimize the number of roads in washes and the number of wash crossings.
- 4. The waterline that extends to the Seeley Waste Water Treatment Plant (SWWTF) was shifted and co-located beneath a site arterial and maintenance roads to avoid all temporary impacts to waters of the U.S.
- Reducing the width of SunCatcher maintenance roads from 15 feet to 10 feet, which is the narrowest road width allowed by industry standards.
- 6. The removal of spur roads to individual SunCatchers from the maintenance road that runs down the middle of the two roads of SunCatchers. This increases the temporary disturbance for the construction of the SunCatchers by the use of a temporary 50-foot road that includes the 2-foot wide trench for the installation of an underground utility line and hydrogen pipeline, but decreases the permanent impacts to waters of the U.S. substantially.
- 7. Originally, sediment basins were proposed to retard water flow through the property and trap sediment. Hydrology and sediment modeling determined that the sediment basins would substantially change the pattern of sediment delivery for the ephemeral streambeds and result in a deficit of sediment transport downstream (Chang Consultants 2010a). The applicant removed the sediment basins from the proposed project as a result of these findings which decreased the permanent impacts to waters of the U.S. by 3.3 acres and reduced impacts to sediment transfer through the project area.
- 8. The Main Services Complex was moved north to move it out of a secondary wash complex. This reduced permanent impacts to waters of the U.S. by 17.4 acres. In addition, it removed the two retention ponds from the wash and reduced the risk of pollutants entering the ephemeral wash system.
- 9. The main access road crosses Wash G, and the crossing originally was planned to use culverts. Chang's initial report indicated that the culvert crossing would impede sediment and alter downstream sediment transfer (Chang 2010a). The crossing was changed to a precast concrete arches culvert system (like a bridge) that will not alter the downstream sediment transfer.

# Seeley Waste Water Treatment Plant Upgrade

The Corps does not consider the Seeley Wastewater Treatment Plant (SWWTP) upgrade a connected action to the IVS Project. Over the past several years, discharge from the facility has exceeded Regional Water Quality Control Board (RWQCB) effluent limits for a number of pollutants, and the RWQCB has issued notices that the facility has discharged wastewater that

violated RWQCB Order No. R7-2002-0126. The planned upgrades are needed to help ensure that no discharges from the facility exceed established effluent limits in the future.

The SWWTP improvements would result in tertiary treated water being available for discharge to the New River and/or for use by recycled water customers, which would include the IVS Project. To the extent tertiary treated water is discharged to the New River, current violations of the SWWTP's National Pollutant Discharge Elimination System (NPDES) permit from discharges of secondary treated water would be eliminated. Tertiary treated water would alternatively be available to meet the Seeley community's existing and future recycled water needs, thereby preserving freshwater resources in the Imperial Valley. Because the Seeley wastewater treatment plant upgrades would be made regardless of the IVS Project, and because the IVS Project could be implemented without the SWWTP upgrades, the two projects are not connected actions.

# Adequacy of Information Provided

Comments in Letter D expressed concern about the DEIS, specifically stating that the document is incomplete and needs revision and recirculation. BLM, as the lead federal agency for preparing the EIS, has responded to this and similar comments related to the DEIS in Section D.4. 14.2 and D.4.16 of Appendix D in the FEIS.

Letter A1, while noting productive discussions with the applicant, states that substantial work remained to be done and that more information would be needed before EPA could conclude that project impacts to aquatic resources would be adequately avoided. To preserve the potential for the EPA and Corps headquarters review, the EPA letter states that based on the information then available, authorization of a CWA 404 permit would have substantial and unacceptable impacts to "aquatic resources of national importance."

Since the receipt of Letter A1, on June 7, 2010, additional work has been done among the Corps, the applicant, and other agencies. The applicant states that it has provided additional information regarding this progress to the EPA. As a result of this work, the project, as revised, preliminarily appears to be the preliminary LEDPA, and with the conceptual mitigation identified, is anticipated to fully offset impacts by replacing all functions and services of the affected resources, and is likely to result in a net increase in functions and services as compared to existing conditions. Accordingly, no unacceptable adverse effects to waters of the U.S. would occur as a result of the project.

# B. Air Quality

Comment Letter D states concerns with respect to two elements of the environmental analysis related to air quality impacts. The first is that disruption of desert pavements could vastly increase the offsite dispersion of particulate matter. However, evaluation of this issue indicates that the actual level of impacts on wind erosion from impacts to desert pavement are considerably smaller than the comment suggests due to the nature of the site, the thistory of the site, the stope of construction, and the erosion characteristics of the post-construction conditions of those areas which are disturbed. First, desert pavement scrub habitats make up roughly 40% of the site, with desert pavement cover accounting for some portion of the mosaic of vegetation, bare ground, and pavement within that habitat type (see, e.g. Y. Wood, R. Graham & S. Wells

2002, documenting pavement making up roughly 30% of pavement mosaic habitats in the Mojave). Botanical surveys did not detect sufficiently extensive areas of cryptobiotic crusts during their surveys to warrant more detailed surveys (see Testimony of Michael Wood on the Application for Certification [AFC] before the CEC, May 24, 2010). The historical extent of desert pavement is unknown, but mining and Off-Road Vehicle (ORV) use have reduced the extent of current desert pavement. More importantly, lost desert pavement would predominately not be replaced by highly erodible subsoils. Overall, the project would disturb some 45% of the project area (3,000 of 6,500 acres, of which 2,750 would be permanent impacts) leaving the pavement on the remainder of the site in its present condition. These impacts may be further reduced as the applicant further evaluates the need for temporary construction-related impact areas at the request of the Corps. For unavoidable impacts, the SA/DEIS provides substantial dust control mitigation measures to be implemented, not least because strict control of dust is a critical requirement of a project dependent on the cleanliness of 12,000 large mirrors for its operational efficiency. The project proposes several other measures that may further mitigate these impacts, such as roads treated with soil binders, building foundations, etc., which are not sources of wind driven dust dispersal to the extent that exposed subsoils are. Thus, the emissions from the construction areas, post-mitigation, are modeled using standard methods for exposed desert soils, while the remainder of the site remains in its pre-project conditions with no attendant increase in emissions associated with destruction of desert pavements.

Second, the comment suggests that the reduction of flows in the New River from diversion of effluent from the Seeley Waste Water Treatment Plant would expose large areas of the Salton Sea lakebed. As evidence, the comment quotes from an analysis at http://www.saltonsea.ca.gov/environ.htm regarding the potential impacts from an unrelated project to transfer up to 200,000 acre-feet per year (afy) of water from Imperial Valley to San Diego, or more than 5,000 times as much water as the IVS Project would use. As the SA/DEIS and subsequent testimony before the CEC explains, the IVS Project would divert an approximate average of 40 to 50 afy for construction and approximately 33 afy for operations. This diversion appears to have no measureable impact on the water level of the Salton Sea, and therefore would not cause, or contribute significantly to, air quality impacts from lake-level reductions and lakebed exposure.

#### C. Alternatives

Comment Letters A, C, D (including attachments D1 and D2), and E discuss requirements for analysis of project alternatives and suggest adoption of certain alternatives.

EPA's regulations at 40 C.F.R. § 230.10(a) provide that "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem so long as the alternative does not have other significant adverse environmental consequences." In order for an alternative to be practicable, the alternative must be "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." These regulations further state that practicable alternatives include but are not limited to "activities which do not involve a discharge of dredged or fill material into the waters of the U.S. or discharges of dredged or fill material at the description of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of dredged or fill material at the state of the U.S. or discharges of t

The Corps' draft 404(b)(1) alternatives analysis preliminarily identifies the 709-MW modified project alternative as the preliminary LEDPA, as described in Section 1.A. above. In the draft 404(b)(1) alternatives analysis, the Corps evaluated six onsite alternatives and six offsite alternatives. The four practicable alternatives, but only two reduced impacts to waters of the U.S. The two practicable alternatives after evaluation of environmental factors are the 750 MW alternative, which has approximately 177 acres of permanent impacts and 5.2 acres of temporary impacts to waters of the U.S.; and Alternative #3 – Avoidance of Highest Flow Aquatic Resources – which is 709 MW and has approximately 38.2 acres of permanent impacts and 10.8 acres of temporary impacts to waters of the U.S. The range of alternatives examined and the level of analysis comply with the 404(b)(1) guidelines.

One comment suggests that the Corps adopt a hybrid 300-MW alternative which would avoid washes and also not require increased transmission capacity. A 300-MW alternative was analyzed by the Corps in the draft 404(b)(1) alternatives analysis. The 404(b)(1) alternatives analysis for the 300-MW alternative to be impracticable because of cost and to a lesser extent logistics because the Main Services Building would not be, as currently designed, centrally located. From a cost standpoint, this alternative would allow for the generation of 300 MW at a cost of approximately \$3,200 per kW. By increasing the cost per kW by \$250 over the proposed project, the construction cost of this alternative would increase by \$75,000,000, as compared to the cost of building 300 MW with the costs associated with the 750 MW proposed project. The estimated total construction cost for 300 MW is \$906,000,000. Construction costs for this alternative are substantially higher than those used to negotiate the Power Purchase Agreement (PPA) with San Diego Gas & Electric (SDG&E) and exceed the cost threshold determined by prices in that agreement.

Overall a 300-MW alternative would not use the land area of the proposed location efficiently. No matter what size project is constructed, a transmission line and substation will have to be constructed to deliver the power from the project to the Imperial Valley Substation; the impacts to waters of the U.S. associated with this part of the project and other infrastructure will not change across alternatives. Because of inefficient layout, the 300-MW alternative would provide 40% of the electric power benefit and result in 70% of the permanent impacts and 67% of the temporary impacts of the most efficient project layout – Alternative #3. Since the 300-MW project is not practicable, a hybrid 300-MW project would be similarly impracticable.

Other comments state that distributed solar photovoltaic systems constitute a feasible alternative to the IVS Project. As noted in the SA/DEIS, however, given the barriers to development and interconnection, distributed solar generation is not likely to produce an expansion of solar capacity comparable to that of the IVS Project. Providing generation equivalent to the IVS Project would require more than double the amount of distributed solar generation installed in the entire state to date, and more than double the current record rate of installation statewide. Distributed solar in San Diego or other locations also would not meet the Congressional mandate in the Energy Policy Act (EPAct) to site 10,000 MW of renewable energy on public lands. Furthermore, the California Renewable Portfolio Standard requires SDGE to meet 20% of its portfolios with renewables by 2010, with higher mandates likely for future dates.

Climate change is a problem that distributed solar alone will not adequately address. Current scientific estimates suggest that stabilizing global greenhouse gas levels may require a reduction of economy-wide carbon emissions by up to 80% by 2050. Neither extensive distributed solar

alone nor large centralized solar facilities alone would be able to accomplish such changes. Therefore, efforts to facilitate distributed solar in other projects and locations do not meet either the stated need for the project or the broader need for renewable facilities. In fact, the exhibits cited by one commenter describe distributed solar as a "critical ... complement to large-scale renewable developments."

One comment suggests that because the project is not "water-dependent," it is strongly presumed that practicable alternatives exist under 40 C.F.R. § 230.10(a)(3). Although the Corps has taken a conservative approach with respect to assessing practicable alternatives, the presumption of section 230.10(a)(3) only applies to activities which are "associated with a discharge which is proposed for a special aquatic site (as defined in subpart E)." Subpart E of 40 C.F.R. part 230 includes only sanctuaries and refuges, wetlands, mud flats, vegetated shallows, rifle and pool complexes, and coral reefs. Since the project site does not include such special aquatic sites and the discharges subject to section 404 of the Clean Water Act are not proposed for such a site, the presumptions at 40 C.F.R. § 230.10(a) do not apply.

Finally, one comment suggested that the reliability of the plant has not been demonstrated. However, demonstration plants in Arizona at Sandia have logged a combined 38,000 hours since 2006, and the 60-dish plant at Maricopa has 23,000 combined operational hours with a 95-percent availability. See Testimony of Marc Van Patten, Evidentiary Hearing before the California Energy Commission, El Centro, May 24, 2010, transcript at 40, available at http://www.energy.ca.gov/sitingcases/solartwo/documents/2010-05-24\_Transcript.pdf.

BLM responds to similar comments related to alternatives in Section D.4.2 of Appendix D in the FEIS.

# D. Biology - General

Some comments state that the project will destroy or degrade habitat of species such as FTHL, Peninsular bighorn sheep (PBS), burrowing owl, and others, particularly through impacts to washes. One commenter states the concern that environmental harm to species related to climate change may be exacerbated by the project. Under the project, approximately one-third of the site would not be directly disturbed and another third would have shrub vegetation initially mowed. Thus there would be some opportunity for annual plants and certain terrestrial wildlife species to remain after construction is completed. FTHL are anticipated to remain onsite after project development. Nonetheless, the applicant has offered and BLM will require mitigation for impacts to FTHL at a magnitude that assumes that the site is a total loss of habitat for FTHL. The project site is not in a geographical location that is critical for the recovery of the PBS. Prior to the 2009 sighting on the project, it is not clear there have been other detections of this species in the project vicinity. There are substantial areas of potential winter/early spring forage habitat more closely associated with the core habitats and designated critical habitats of this species. Burrowing owls are known to occupy habitats adjacent to the project site and linear components. Pre-construction and construction clearance surveys for burrowing owl are required, and any owls detected would be passively excluded from the site prior to and during construction. Appropriate construction BMPs would be implemented as indicated in the CEC's proposed conditions of certification BIO-8 and BIO-16. These conditions of certification would mitigate burrowing owl impacts to less than significant. No documented primary movement routes would be constrained by the project.

Additionally, the 709-MW would reduce impacts to waters of the U.S. to 38.8 acres, whereas the proposed 750-MW project would have impacted approximately 177 acres. This reduction in impacts to waters of the U.S. also reduces impacts on species. Use of soil binders would be limited to the main road network, so the proportion of the site affected is small. Binders are an agency-accepted method to minimize dust on unpaved roads. Roads crossing washes are minimized in the 709-MW alternative.

Since the generally conservative approach to mitigation and avoidance of impacts, as well as the relatively sparse presence of species of special concern, would minimize impacts, the potential for these effects to exacerbate the effects of climate change on these species is similarly limited. Indeed, since climate change itself is likely to have a far more widespread and profound impact on all desert species, this project, combined with others that displace dirtier, carbon-emitting energy sources, represents a significant component of efforts to stave off the worst impacts of climate change on these species, not just at the project site, but throughout their ranges.

Other comments suggest that the regular maintenance of the SunCatchers would cause sustained damage to washes. However, the maintenance of the site would not be intensive and would not involve use of the washes onsite, beyond the use of wash crossings. Vehicular traffic for maintenance of the SunCatchers would generally be performed from the north-south maintenance roads.

Other comments express concerns that noise from the SunCatchers would disturb use of the washes. After construction is completed, the project would have operating SunCatchers, power transformers, collector GSUs, and mobile maintenance/service trucks creating noise over the entire project area. However, aggregate operational noise from the first three of these (i.e., the ones having fixed locations) is expected to range, depending on time of day, from 63-74 dBA hourly Leq over vegetated strips of land between rows of SunCatchers. [Note: The citation of 84 dB in the Calico SA/DEIS referred to by one comment was in error. The correct maximum noise level is 74 dBA hourly Leq]. The noise from service trucks would depend on frequency of passby and distance with respect to a receiver location. For instance, a pick-up truck (85 dBA at 50 feet) passing a sensitive receptor four times in an hour, with each pass-by taking no more than 30 seconds and at a distance of no closer than 150 feet, would result in an hourly Leq of less than 60 dBA. Operational noise levels would exceed the 60 dBA Leq impact threshold for the vegetated habitat that is left undisturbed post-construction. This includes about 177 acres of vegetation along the eastern boundary of the site that is not currently impacted by highway noise. The use of noise impacted vegetated habitat by wildlife would depend on each species' tolerance to noise and their ability to adapt to the louder noise environment. AFC Section 5.6.2.1 concluded that "only common species with small vegetated area requirements (e.g., house finch [Carpodacus mexicanus], lizards, and snakes) are expected to continue to utilize these strips of vegetation." The added effect of increased noise does not substantially change this conclusion.

Some comments suggest that potential spills of engine oil and ethylene glycol from the Stirling Engines pose a threat to wildlife and wetlands. Measures to address and mitigate these threats are identified as conditions of certification to the SSA and mitigation measures in the Final EIS. They include but are not limited to a Spill Prevention, Countermeasures, and Control Plan; worker training; and spill response measures.

A comment suggests that the modifications to the SWWTP would have significant impacts to local wetlands, New River, and the Salton Sea, including impacts to the Salton Sea National

Wildlife Refuge. However, based on existing, available information, it appears that surface water is supplied to the wetland by agricultural return flows and underdrain flow from a separate drinking water treatment plant, and that this water would supply adequate water to maintain the wetland after water supply from the SWWTP is discontinued or reduced (Dudek 2009). The hydrological study is necessary to quantify how withholding water from the emergent wetland would affect the wetland habitat and any listed species that may occupy the affected habitat. The additional hydrologic studies are being conducted as part of the studies associated with the SWWTP upgrades.

Next, comments express concerns that the project would damage cryptobiotic crusts, which have not been surveyed, causing erosion and dust dispersion. The team of botanists noted very few areas of the project site that support cryptobiotic crusts. The historical and current land uses of the site (mining, recreational OHV activities) and presence of desert pavement scrub on 40% of the site preclude the presence of such crusts for much of the site.

Three comments suggest that the project would create a barrier to movement of animals through the site. However, in an inventory of culverts, only one of the culverts onsite associated with 1-8 was deemed accessible to FTHL use. 1-8 is considered a substantial barrier to FTHL movement along the southern boundary of the site. There is a likely movement corridor associated with the bridge crossing of Coyote Wash west of the project site. This bridge crossing provides a habitat linkage between the two BLM Management Areas (MAs) in the project vicinity. FTHL successfully crossing a major interstate highway would likely be a rare occurrence. 1-8 is an effective barrier to FTHL movement at the project location. The use of the site by other species as a movement corridor is also discussed below, however the fact that the site is already surrounded by uses which comprise significant barriers to movement suggests the impact of the project is not significant in this respect.

Finally, one comment expresses concern that the project components' reflective surfaces may increase bird mortality. However, there is no data available to suggest that the facility would cause significant mortality due to birds colliding with the SunCatcher units and other structures proposed for the facility. No bird mortality has been reported for the small scale SunCatcher facilities in Arizona and New Mexico.

It should also be noted that the project has many positive aspects with respect to plants and wildlife. The project site is located outside the core Mojave Desert bioregion and is already impacted by the surrounding industrial, recreational, and transportation uses. Nearly the entire site lies with 250 meters of a road, industrial, or agricultural site. Furthermore, perhaps as a result of these site characteristics, the site is relatively biologically poor, with few FTHLs or other species of concern detected at the site. The impacts of use of reclaimed water from the SWWTP are also minor, representing a small fraction of the flow of the New River, and the improvements to the SWWTP would result in an improvement of water quality over the existing status.

# E. Biology – Eagles

Although concerns surrounding the possible presence of golden eagles have been raised, no eagle nesting sites are known to occur within the project vicinity. The entire desert valley is potential foraging habitat for eagles and other birds of prey, although surveys for other projects in the area

have also not found nests. At this time, it is not clear what criteria the USFWS will be using to determine whether a Bald and Golden Eagle Protection Act (BGEPA) permit will be required.

# F. Biology - Flat-Tailed Horned Lizard

A number of surveys and studies for FTHL have been conducted, based both on projections from habitat characteristics and actual counts. Although one assessment described in the SA/DEIS produced a projection of 2,000 to 5,000 lizards, the extremely low number of lizards actually encountered during site surveys cuts strongly against such a high population estimate. This discrepancy may arise because the sites upon which the extrapolations appear to be based have significantly different habitats (e.g., there are more extensive areas of desert pavement scrub onsite); extensive edge effects at the project site; and a history of disturbances to the site that might explain a lower number of FTHL at the site than what site characteristics alone would suggest.

The SA/DEIS included a variety of mitigations for the FTHL population, including a series of predator management actions involving raven management, minimizing predator perching opportunities, and avoiding access to food and water on site. The applicant is working with the USFWS and other responsible agencies to develop additional or improved mitigations for what may be a smaller population than originally estimated. The mitigation program and related conditions of approval specifically address the regional loss of significant biological resources and are consistent with such regional planning guidelines as the Range Management Strategy (RMS) for FTHL.

In a regional setting, the project is consistent with the RMS since the project is sited outside the Management Areas (MAs) established for this species. The transmission line is within an established transmission ROW corridor. Also, the project does not represent an additional barrier to movement between the MAs for this species. In an inventory of culverts, only one of the culverts onsite associated with 1-8 was deemed accessible to FTHL use. 1-8 is considered a substantial barrier to FTHL movement along the southern boundary of the site. There is a likely movement corridor associated with the bridge crossing of Coyote Wash west of the project site. This bridge crossing provides a habitat linkage between the two BLM MAs in the project vicinity. FTHL successfully crossing a major interstate highway would likely be a rare occurrence. I-8 is an effective barrier to FTHL movement at the project location. FTHL has recently been detected west of the Coyote Wash bridge.

In Sections D.4.7.5 and D.4.7.6 of the FEIS, BLM addresses similar comments pertaining to FTHL.

# G. Biology - Peninsular Bighorn Sheep

As was noted in the SA/DEIS, the first documented sighting of PBS in the project area was recorded in 2009. A group of five female/yearling PBS were observed in an ephemeral stream on the western half of the project site during a site visit by Dr. Joe Platt of the company PBS&J on March 25, 2009. Given the absence of any previous sightings, the Corps expects that bighorn sheep do not make frequent and biologically important use of the IVS Project site given the distance of the site from the core habitat areas 4-6 miles west of the site, as well as the intervening barriers (railroad and highways) surrounding the site. A comment suggests that new

transient use may indicate dispersal to new sites, expansion, or movement between populations as the species recovers. However, there is no data to support this concept specifically for PBS. As previously mentioned, essential habitat for PBS occurs 4-6 miles west of the project. The important dispersal routes have previously been identified through field observation and telemetry data of individuals. There was a sighting of PBS in 2010, but the 2010 sighting occurred 4-5 miles west of the site, west of Ocotillo, close to an area that is known to be a PBS movement corridor.

One comment speculates that the site may have "high quality" forage. The site has both historical and current disturbances that make the site in a less than pristine condition compared to habitate sleswhere that are being managed for their biological resource values (State Park lands, Areas of Critical Environmental Concern [ACEC] and MAs). The project site is not associated with known dispersal corridors for this species. Nonetheless, the USFWS is evaluating the potential use of the site by the PBS as foraging habitat. The USFWS results will be included in the joint Biological Opinion/Conference Opinion for the PBS/FTHL, respectively at the conclusion of the formal Section 7 Consultation with BLM and the Corps. At that time, the Corps will incorporate any additional analysis or information into the final 404(b)(1) analysis, Corps' Record of Decision (ROD), and Special Conditions of the permit should one be issued. At this time, it is estimated that the mitigation for PBS and Corps jurisdictional waters of the U.S. would be similar, on the order of 250 acres of enhancement and rehabilitation in Carrizo Creek and marsh, known foraging areas for the PBS.

Finally, one comment raises concerns that this project along with a range of other planned projects might have cumulative impacts on the PBS. However, like the IVS Project, none of the other proposed projects are sited within areas designated as essential or critical to the recovery of PBS.

BLM responds to similar comments related to PBS in Section D.4.7.7 of Appendix D in the FEIS.

# H. Biology - Rare Plants

Several comments question the adequacy of the rare plant surveys on the project site. Extensive efforts have been made onsite to identify and locate all rare plants by detailed botanical surveys. While the initial approach of the surveys for the SA/DEIS was a reasonable approach which demonstrated a low presence of rare species at the site, subsequent more extensive surveys have conclusively documented the plant diversity present at the site. The 2009-2010 winter rainy season produced above average rainfall. The 2008 botanical surveys were completed after a low rainfall period. As would be anticipated, the higher rainfall events produced a greater abundance and variety of species on the site. The identification of an additional 25 native plant species on the site during the 2010 surveys is consistent with what would be anticipated on the site given the increased rainfall. As recommended by one comment, further surveys for fall annuals are planned for September 2010.

The 2010 surveys have been carried out in accordance with protocols approved by CEC, BLM, California Department of Fish and Game (CDFG), and USFWS with fully qualified technical experts. All the personnel who performed the 2010 surveys are well-trained botanists with many years of experience, and identified all species found at the site. Some members of the 2010

survey team participated in the 2008 surveys; the remainder, while new to the IVS Project site, have extensive experience with the flora of the California deserts. Prior to each of the 2010 surveys, all personnel visited nearby reference populations of several of the target species and spent time on site working as a group to confer on the site's flora. Team members collected specimens in the field for plant identification working sessions each evening. A great deal of attention was spent on making species determinations, and no species that could have been confused with any of the target species were left unidentified; all taxonomic uncertainties were resolved. All target species found onsite were collected and either compared with specimens stored in herbaria or were submitted to Dr. Jon Rebman, curator of the herbarium at the San Diego Natural History Museum, to verify the identification. Some 24 native species with no special status are present and locally abundant such as Langloisia. Several patches of Smoke Tree Wash were detected during the surveys as well as areas which could be classified as creosote-desert holly alliance, but both are considered common enough in the California Natural Diversity Database (G4 or G5 classification) not to be communities of particular concern. The classification as common community types notwithstanding, current plans to reduce impacts to washes will preserve significant areas of these communities.

In Section D.4.7.1 of the FEIS, BLM addresses similar comments pertaining to rare plants.

# Biology & Hydrology – Seeley Wastewater Treatment Plant Impacts to Wetlands

Several comments state concerns that the modifications to the SWWTP and the diversion of water from the plant would result in significant degradation and impacts on aquatic and wetland dependent wildlife. However, based on existing, available information, it is believed that surface water is supplied to the wetland by agricultural return flows and underdrain flow from a separate drinking water treatment plant, and that this water will supply adequate water to maintain the wetland after water supply from the SWWTP is discontinued (Dudek 2009). Further hydrological study is necessary to quantify how withholding water from the emergent wetland will affect the wetland habitat and any listed species that may occupy the affected habitat. The additional hydrologic studies are being conducted as part of the studies associated with the SWWTP upgrades. In any event, it should be noted that the operational diversions for the IVS Project would not divert the entire flow from the plant.

Other comments suggest that the reduction in flows may influence the salinity of the Salton Sea and adversely impact the birds and other wildlife in the Salton Sea. Since the Salton Sea depends on inflows to balance evaporation to maintain the salinity of the Salton Sea, the loss of any inputs into the Salton Sea would affect the salinity of the lake. However, the flow in the New River at the International Border is about 150 to 200 cubic feet per second (cfs). The New River flow at the Salton Sea is about 600 cfs. The current contribution of the SWWTP to the New River is approximately 0.09 percent (112,000 gallons per day [gpd] or 0.17 cfs divided by 200 cfs). It is anticipated that use of effluent water currently discharged to the New River from SWWTP will not result in significant impacts to the New River water quality (including salinity). The diversion of up to 200,000 gpd of treated effluent from SWWTP to the IVS Project would result in only a 0.15% decrease in the freshwater flows to the New River at the discharge point and a decrease of approximately 0.05% at the Salton Sea. Based on this small percentage of reduction in flows, it is anticipated that the potential reduction in flows will not result in a significant reduction in water quality, including salinity, at or below the discharge point of SWWTP to the New River or to the Salton Sea.

Based on the assumption that the diversions would have substantial impacts on the salinity of the Salton Sea, these comments also express concern that the effects on salinity would adversely affect the National Wildlife Refuge, including impacts on special status species and their habitat, including the Yuma clapper rail, the California black rail, the vermilion flycatcher, the least Bell's vireo, the southwestern willow flycatcher, the yellow-billed cuckoo, and the Western burrowing owl. However, results of bird surveys to date have been negative for all of the species listed above. The potential change in salinity attributable to the SWWTP project will be negligible (see responses above regarding salinity). Although there are a variety of other, more substantial projects affecting flows in the region, the negligible effects from the SWWTP project will not significantly contribute to cumulative effects in the region.

BLM received similar comments related to water resources, which are addressed in Section D.4.7.10 and D.4.13 of Appendix D in the FEIS.

#### J. Cultural Resources

Comment Letters D and E discuss the project's impacts on cultural resources. Efforts to reduce effects to cultural resources include elimination of a large portion of the initial survey area for the project from consideration for development due to the presence of sensitive cultural resources. As a result of this change, the originally proposed project was reduced from 900 MW to 750 MW and from 7,600 to 6,500 acres.

To comply with federal laws and regulations including Section 106 of the National Historic Preservation Act (NHPA), archival research, survey, and contacts with persons and groups potentially knowledgeable or with interest in the area have been conducted. These efforts successfully identified cultural resources as documented in the SA/DEIS. The project has the potential to adversely affect some of these resources and therefore a Programmatic Agreement (PA) is being prepared to address these issues. Under 36 CFR 800.14 b (1) (ii), a PA may be used, such as in this case, when effects on historic properties cannot be fully determined prior to approval of the undertaking. Since the SA/DEIS was issued, BLM has reviewed the Class III report further detailing what is known about the cultural resources in the project area.

Although the project has the potential to affect the Juan Bautista de Anza National Historic Trail Corridor, no on-the-ground evidence of Anza's route has been identified by the intensive pedestrian survey. However, because of concern for the trail, additional investigations are ongoing in an effort to identify any evidence of the trail in the project area.

To address concerns about prehistoric sites and areas of concern to Tribal representatives, discussions with Native American groups and other interested parties are on-going, as is Government-to-Government consultation. The Historic Properties Treatment Plan, a component of the PA, will include a Monitoring and Discovery Plan. A Native American Graves Protection and Repatriation Act Plan will guide any unexpected discoveries. Both of the plans are being prepared and will be distributed to consulting parties for review and comment. BLM is currently consulting with Tribal groups regarding potential visual effects on landscapes and other locations of concern. It has been acknowledged that there may be significant project impacts to cultural resources, particularly where project visibility is a concern.

BLM received similar comments related to cultural resources, which are addressed in Section D.4.9 of Appendix D in the FEIS.

#### K. Water Supply

The IVS Project proposes to use recycled water from SWWTP as its primary water supply. The Seeley County Water District is proposing to construct the upgrades necessary to achieve statutorily-required water standards. The Seeley County Water District has published an initial study on the environmental impacts of that plant upgrade, and has issued a notice that it is preparing an Environmental Impact Report (EIR). The plant upgrade would result in the production of recycled water that could be used for the IVS Project. Water would be delivered from the Seeley plant to the IVS Project via a new water line that would extend approximately 11.8 miles from the plant to the Project site; approximately 3.8 miles of the water line would be onsite and 8 miles would be offsite. The portion of the water line that is proposed to extend from Imperial Irrigation District's Westside Main Canal to the project site is approximately 3.4 miles.

The applicant has obtained rights to up to 200,000 gpd of the recycled water the upgraded plant is projected to produce. However, this arrangement stems from the applicant's agreement to fund the plant upgrades and does not indicate that all the recycled water would be used at the IVS Project. Neither the applicant nor the Seeley County Water District has determined what uses, if any, would be made of the additional recycled water that exceeds the IVS Project demand.

Potable water for use by onsite personnel would be supplied from local potable water supply sources, such as Sparklett's and others in the project area. This water would be trucked to the project site and stored in a tank that would be sufficient to provide all required potable water for the operating facility for 2-3 days, at which time it would need to be replenished.

Until the SWWTP supply is available, the IVS Project proposes to obtain its water supply from an existing private water purveyor, the Dan Boyer Water Company, which operates a registered well (Boyer Well) in Ocotillo, California, in the Ocotillo/Coyote Wells Groundwater Basin. The Ocotillo/Coyote Wells Groundwater Basin is estimated to be 1,200,000 acre-feet of storage, and has been designated a Sole Source Aquifer by the EPA. Under the Sole Source Aquifer program of the Safe Drinking Water Act, no commitment for federal funds may be made for any project which the EPA regional administrator determines may contaminate a designated aquifer through a recharge zone so as to create a significant hazard to public health. Safe Drinking Water Act § 14224(e). There are approximately 60 wells in the Ocotillo/Coyote Wells Groundwater Basin.

The Dan Boyer Well is an alternate, temporary water supply for the project that would be used only if the primary water supply is unavailable and only until that primary supply becomes available. The Boyer Well is located approximately 3.5 miles southwest of the project site. The well has been operating since the 1950s, before Imperial County began regulating wells, and Imperial County has registered the well as a pre-existing well, subject to certain conditions. One of those conditions is that the pumping is limited to 40 afy. The well has historically been used for construction and personal use. Company records indicate that only a couple of individual users have used the well for their domestic supply, and that water from the well has been sold primarily to a variety of commercial users over the years. The record shows that the maximum use by individual users have been on the order of 10,000 gallons per month (0.37 afy), for which applicant would be willing to forgo use of up to this amount during the period in which applicant is using the water for construction and operations. Moreover, to the extent sales to the IVS

Project would only replace sales to other users, there would be no impacts to the basin from use by the IVS Project.

Water from the Boyer Well would be transported to the project site, which is within Imperial County. The Dan Boyer Water Company has provided the applicant with a will serve letter that demonstrates that an adequate water supply would be available to the project until the SWWTP supply is available.

The actual water demand of the IVS Project would vary each day as different construction or operational activities are undertaken. The peak usage is projected to be approximately 90,000 gpd during construction. However, the peak demand is not projected to occur every day and instead represents the highest projected daily usage. Water demand is measured by average annual amounts. Construction demands are projected to average approximately 50 afy assuming a 6-day workweek and availability of recycled water. The applicant would adjust the IVS Project construction schedule to ensure its demands are not more than 40 afy if it uses water from the Boyer Well during construction. The operational demands of the project are projected to be only 33 afy. The project would not use more than 5 times the allowed volume of water that can be extracted from the aquifer using the Boyer Well.

Pumping from the Boyer Well has been occurring for several decades. Records indicate that extractions from the Boyer Well in the mid- to late-1960s reached 198 afy, and records for period 1992 through 2004 indicate that pumping ranged from 2.9 afy to 42.1 afy. However, the analyses referenced below addressed the impacts of pumping up to 40 afy from the well, without deducting current ongoing pumping, and without deductions for the fact that water demand during IVS Project operations is projected to be only 33 afy.

Extensive data and analysis of the impacts of using water from the Boyer Well has been reviewed. Some of this evidence appears in the applicant's Supplement to the Application For Certification, docketed by the CEC on May 5, 2010 ("Supplement") (See Sections 1.4 and 2.5, and Appendices C and D'). Testimony provided on May 24 and 25 from Mare Van Patten and Robert Scott in the CEC proceedings addresses the history, operation, and impacts of the well. The applicant's Supplemental and Rebuttal Testimony, posted by the CEC on May 24, 2010, contains testimony from Matt Moore and Robert K. Scott regarding water supply issues. The 2006 EIR/EIS prepared for the U.S. Gypsum Company Expansion/Modernization Project was also reviewed to provide background information on groundwater in the basin. The studies conducted for this project included groundwater pumping and stress tests, water quality analyses, and review of water level trends in the Boyer Well since it was first monitored in the 1970s.

There is much conflicting evidence and criticisms have been made (both inside and outside of litigation proceedings) of virtually every study or analysis of the data regarding the basin, the Boyer Well or other wells in the basin. Moreover, projections about future events, including projections made by computer models, are estimates and take into account many assumptions. Some of the criticisms include statements that U.S. Gypsum's reported pumping rates far exceeded the pumping estimates based upon production records for the period 1970 to 1975. Nonetheless, the studies reviewed in assessing the impacts of the IVS Project comprise

<sup>1</sup> The AFC Supplement is available on the website of the California Energy Commission at http://www.energy.ca.gov/sitingcases/solartwo/documents/index.html/applicant 1t is posted in a single 17.6mb file, not in five parts, and can be viewed and printed from most computers.

substantial evidence that water supply impacts would be less than significant. Furthermore, as noted below, the offset the applicant proposed would ensure no impacts to the basin.

This evidence indicates there would be no significant water quality impacts. The IVS Project is not projected to introduce contaminants, and there is no evidence of existing contamination that Boyer Well operations could affect. There is no evidence that using water from the Boyer Well, in which fluoride levels that exceed drinking water standards have been detected, for construction purposes or to wash mirrors at the IVS Project would contaminate any portion of the basin. RWQCB permitting requirements referenced at page 4 of the Corps' Public Notice are relevant to water quality in stormwater and other runoff; they are not relevant to use of water from the well at the IVS site. A change in total dissolved solids from 341 to 635 for the period between 1958 and 1975 would not be considered significant. More important, recent water quality tests, reflected in the Groundwater Evaluation Report submitted by the Applicant, show that current water quality at the Boyer Well is identical to that reported by USGS in 1975, indicating that historic pumping has not caused any long-term water quality changes. The Leighton EIR is not directly relevant, as it addresses marginal areas at the eastern edge of the basin, which overlie the Palm Springs Formation and not the alluvial aquifer. Well production in this area is low and water quality has been marginal. The zone of influence tests conducted on the Boyer Well confirm that pumping from the Boyer Well would not significantly affect those distant areas and likewise would not cause significant amounts of poor-quality water from those areas to migrate to the area of the Boyer Well. These conclusions are consistent with those reached by CEC Staff, which concluded in its Supplemental Staff Assessment that even if the Boyer Well were used for the life of the Project, rather than as a temporary supply, impacts would not be significant: "a total upflux [from the underlying Palm Springs and Imperial formations, which have relatively high TDS water] of less than 145 acre-feet from project water use over the construction and operational life of the project . . . is at most 0.4 percent of the minimum affected aquifer volume and therefore considered insignificant."

This evidence also indicates there would be no significant impacts relating to groundwater availability.

The Groundwater Evaluation Report submitted by the applicant concludes:

- The aquifer penetrated by the well can support water demands for the Imperial Valley Solar Project during construction and the lifespan of its operations (as needed).
- Continuous pumping of the well at [about 25 gallons per minute, or approximately 40 acre-feet per year] for a period of one, two or three years will have no significant impact on water levels in the area, as the [zone of influence of the well] is considerably less than the distance to the closest well, which is approximately 500 feet away.
- This analysis regarding the amount of supply and pumping indicates that the incremental amount of water demanded by the project is so small as to provide no reasonable scientific basis for concluding that it would cause or exacerbate any overdraft. The pumping required for the Project would continue for a relatively

short duration that is generally accepted as not having any substantial effects on basin levels.

(Supplement, Appdx D § 6.2.) The analyses and conclusions of this report were confirmed in a peer review conducted by Eric M. LaBolle, PhD. (CEC Ex. 40)

Accordingly, extensive analysis and study has been conducted. These studies conclude that the temporary pumping of up to 40 afy from the Boyer Well for one, two, or three years, whether viewed in isolation or in combination with other past and projected ongoing pumping (such as the Gypsum facility at Plaster City or the other wells in the basin) would not influence other wells, as the zone of influence would not extend as far as the other wells. This pumping would not noticeably shorten the time period within which the basin wells can operate and would not substantially deplete the amount of water available. Moreover, while the CEC Supplemental Staff Assessment concludes there is a significant unmitigable impact, it references only a depletion of basin storage in the abstract. CEC Staff acknowledges that no significant adverse physical impacts would result from such depletion, concluding that "The expected water level decline from project groundwater consumption is too small to significantly affect existing well yields; there are no reported springs in the area and the present-day water table is too deep to support phreatophytic vegetation. Well interference and the effects of water level declines on other basin users are therefore considered less than significant."

Commenters referenced several factors, none of which are relevant to the question whether the Project is likely to affect the quality or quantity of water available to other water users or other resources. The purpose of the EPA's designation of the basin as a Sole Source Aquifer is to protect the water resource for the users that rely on it, but it does not preclude development projects that do not adversely affect the aquifer. The fact that there are several domestic uses reliant upon the basin does not mean that the Project intends to "trump" those users. Much of the land in the basin is managed by BLM and is not available for construction of additional wells or pipelines. In addition, the area is subject to local planning requirements that forbid or restrict agricultural uses. These factors indicate that it is not likely that many new wells will be constructed in the area, but do not indicate whether the Project is likely to have impacts. Likewise, disputes about what water rights U.S. Gypsum has, how U.S. Gypsum has pumped in the past, and amounts pumped by the Octotillo Express Wind Facility would not undermine the validity of the tests conducted of the Bover Well.

Furthermore, to ensure there are no impacts, the applicant proposed an additional mitigation measure to the CEC which will offset the amount of water pumped from the Boyer Well for the IVS Project. TSNA will purchase the rights necessary to ensure that, after the IVS Project discontinues its temporary supply from the Boyer Well, an amount of water equal to the amount the IVS Project uses will remain unpumped and in the Ocotillo/Coyote Wells Groundwater Basin, rather than being sold to third parties. This measure would offset any long-term impacts to the basin.

BLM also addresses similar comments in Sections D.4.13.1 and D.4.13.2 in Appendix D of the FEIS.

### L. Hydrology and Soil Analysis

Dr. Howard Chang developed hydrological studies of the erosion and sedimentation at the site both with and without the 750-MW project, based in part on hydrological studies by Stantec and RMT. Dr. Chang's sediment modeling study showed that, with the sediment basins removed from the site plan, the project will not change sediment flow or delivery towards areas downstream from the project site. Since the project would not have significant impacts on sedimentation or erosion, the ecosystem services rendered by the washes should remain intact, and downstream waterways, such as the Salton Sea and New River, would remain unaffected as a result. The potential impacts of the project to the receiving waters downstream of the project site are governed by the water and sediment flow to the downstream receiving waters. As the project will not significantly change flow or sediment transport to offsite areas, there should be no impacts to offsite fluvial morphology. Since the water and sediment transport to the offsite areas will not be changed by the project, there is no need to extend the study further downstream. Although additional detail in the hydrological models might marginally improve the detailed predictions, and different assumptions and parameterizations produce slightly different predictions, overall the hydrology and hydraulic analyses and erosion calculations performed for this project on behalf of the applicant provide a sufficient level of detail to evaluate the potential impacts to surface water resources. Substantial changes to the hydrology of the site are not expected based on Dr. Chang's studies.

Section D.4.13.3 in Appendix D of the FEIS includes BLM's response to similar comments.

#### 1. Hydrographs

Some comments criticize the choice of triangular hydrographs used as a model of rainfall events. All agree that storm flows in the desert environment are typically short in duration with the discharge rising and falling rapidly. Therefore, the hydrographs used by Dr. Chang reflect the fact that while each storm may vary considerably in duration, the 6-hour storm is likely typical. The 6-hour storm duration for the storm flow may not be considered too short for the desert environment since storm flows in such areas are typically short in duration. Thus, a triangular hydrograph of 6-hour duration is representative of short duration storms, and, if anything, overestimates the total volume of storm flow to result in more erosion in the washes. Finally, the same hydrograph is applied to both the pre- and post-project conditions. With this approach, the impacts of the project are evaluated on the same basis, so that if there are detailed dynamics not captured by the models, these affect both sets of conditions equally. The alterations advocated for in the comments would not materially change the conclusions with respect to the differences between pre- and post-project conditions because they would be applied to both conditions equally.

Additionally, Dr. Chang modeled the extreme 100-year storm conditions to develop an assessment of the extreme events that represent the primary determinants of erosion and sedimentation. The study applied the 100-year storm for stream hydraulics, sediment transport, and stream channel changes. The 100-year storm is a rare event, which is statistically exceeded once in a 100-year time span. Sediment transport is very sensitive to the flow discharge. Events smaller than the 100-year storm cause much less sediment transport and stream channel changes. The assessed flows therefore represent considerably stronger flows than those represented by the various alternative hydrographs presented by the commenters. Thus, the effects of these extreme

storms govern the long-term impacts, as well as the upper bound of downstream sediment impacts. For this reason, the study results based on the 100-year storm provide adequate protection for the IVS Project.

A similar logic pertains to the potential impacts of climate change on the hydrology at the site. Although it is unclear whether southern California will experience an increase, decrease, or no change in precipitation, the models already incorporate a 100-year storm, which would represent the upper end of the range of impacts in any event. Since sediment transport and erosion impacts, even under the extreme scenario, are not significant, an increase in the intensity of the typical storm still would not result in significant sediment flows from such lesser storms.

Section D.4.13.3 in Appendix D of the FEIS includes BLM's response to similar comments.

#### 2. Excess rainfall

The IVS Project entails grading and disturbance in some areas, while leaving areas of vegetation intact within the site. Some comments, specifically in Letter E, have faulted the hydrological analysis for failing to account for changed runoff conditions or within-site variation in geomorphology as a result of construction, noting that the curve number in the model was the same both before and after construction, implying unchanged runoff characteristics, and that within-site variation in geomorphic surface was not incorporated into the model. These comments cite impacts resulting from both increased runoff resulting from putative increases in percent impermeable cover (see below) and decreased runoff resulting from the grading associated with the project.

However, the aggregate impacts of the project on soil surface conditions are too modest to warrant the use of a different Curve Number to describe the site soil characteristics is not warranted. Analyses by RMT suggest that these changes in absorption rates, runoff, and drainage patterns will be minor. The SA/DEIS concluded that the overall impacts of the site on the surface hydrological characteristics of the site were present, but not significant after mitigation. Therefore, the curve number for pre- and post-project simulations would also be expected to be commensurately minor, especially after mitigation. In this case, the similarity of the pre- and post-project simulations does not reflect a lack of consideration of effects of deep grading, damage to crusts, etc., but rather a considered conclusion that these effects are not sufficiently large to drive a disparate parameterization. One comment also suggested that the gully erosion may be a significant factor, however, the project is designed to avoid high erosion gullies. The flow off SunCatcher dishes is not expected to be of high enough velocity to contribute significantly to concentrated flow runoff.

One comment also recommended incorporating spatial variation in the soil surface and sediment characteristics at the site. However, site visits and sampling by Dr. Chang showed that the site is relatively homogeneous with respect to the relevant soil characteristics. In particular, it is important to note the context that the site is not particularly rich in crusts or pavement, possibly as a result of the history of the site. Although deserts often contain a range of cryptobiotic crusts and desert pavement, these features do not appear to be sufficiently extensive at the site and the effects of the disturbance limited such that more detailed modeling of such effects would not substantially change the conclusions of the runoff across the site as a whole. The botanical surveys did not detect sufficiently extensive areas of cryptobiotic crusts during their surveys to warrant more detailed surveys. (see Testimony of Michael Wood on the AFC before the CEC,

May 24, 2010). During the several biological surveys, the biological survey team had several members qualified to recognize crusts, but found that these crusts were not extensive at the site. This observation may be consistent with disturbance from the historical use of the site. Although the site has intact, it appears the site has been disturbed historically by ORV racing and off-road driving at various locations within the project area, and the "scraping" observed in the central region of the site. Also, as noted above in the "Air Quality" response, desert pavement scrub habitats make up roughly 40% of the site with only a portion of that habitat typically consisting of desert pavement, and that historical extent further limited by historical impacts of mining and ORV use. Overall, the project would disturb at most some 45% of the project area (3,000 of 6,500 acres, of which 2,750 would be permanent impacts) leaving the pavement on the remainder of the site in its present condition. More importantly, lost desert pavement would predominately not be replaced by highly erodible exposed subsoils as suggested in the comments, but rather by stabilized and mitigated project areas, such as roads treated with soil binders, building foundations, etc. Given these characteristics of the site, detailed modeling of what crust and pavement is replaced with roads and other areas of project development would not have substantial enough effects to alter the general conclusions of the sedimentation studies. These impacts are not likely to affect crusts offsite, despite claims of such effects by unspecified mechanisms, since crusts may be associated with vegetation types without bearing any causal relationship to the conditions of neighboring areas.

Similarly, changes in the percent impervious cover (PIC) may also drive changes in runoff characteristics, but, as mitigated, these also do not significantly alter the conclusions of the hydrological modeling. First, the project design only includes a small amount of paved areas which drain into a retention basin to prevent hydromodification effects on the natural hydrology on the site. The remainder of the site remains unpaved and permeable, reducing any impacts on runoff characteristics of the site. Additionally, although one commenter raises issues related to the removal of vegetation, the project includes primarily trimming of vegetation, rather than removing the vegetation, particularly in washes, such that the hydrological consequences are less severe than would be expected from full removal of vegetation on the site.

# Soil loss and upper boundary sediment inputs

As noted in the SA/DEIS, "erosion potential by water during construction is expected to increase as a result of loss of vegetative cover, removal of surface crust and desert pavement, and increased local sediment transport through creation of localized gullies and rills on newly graded slopes." SA/DEIS at C7-26. However, these effects have been estimated using the field standard RUSLE 2.0. Contrary to the speculation by commenters, RUSLE has been parameterized for desert and rangeland soils since the first iteration of the software. See Table 1 in Renard, & J.R. Simanton (1990). As noted in the SA/DEIS, Chapter C7, Soil and Water Resources, Table 1, the soils at the site have been characterized with respect to wind erodibility, erosion factor, and permeability. Overall, the estimates of soil loss as contributions to sedimentation and erosion from the RUSLE 2 model follow standard practices and should prove to be reliable predictions which are robust to additional complexity and slight errors in model inputs. See Application for Certification, Appendix W.

Also, several comments appear to assert that the model did not include sediment inputs. In fact, the rate of sediment inflow into a study reach is provided by the upstream boundary condition for sediment. If this rate is known, it may be included as a part of the input and used in the

simulation. Unfortunately, sediment rating data are usually not very reliable or simply not available. For this case, sediment inflow rate is computed at the upstream section at each time step, the same way they are computed at other cross sections along a wash. The sediment inflow to each wash is based on the stable conditions of sediment flow into the washes. The inflow rate for sediment changes with the storm discharge. For this study, each study reach extends far enough upstream so that the channels beyond are in their stable state. Factors that may induce stream channel changes are included in the study reach. Since the upstream section for sediment inflow is in the stable state, the computed sediment inflow represents the actual sediment inflow. Since this project makes no changes to areas outside the upstream limit of the washes, the natural sediment inflow is not changed by the project. For this reason, the inflow sediment was included, and this method produces the most reliable estimates available for the study.

### 4. Sediment transport

Given the model conclusions that the flows on the site are generally slow and shallow, it is reasonable that the models show no significant increase in sediment transport as a result of the project. The wash morphology on the site is very flat, so the maximal velocity is low even under peak flow conditions of a 100-year storm event. These general conclusions are consistent with field observations during a 10-year rain event January 20, 2010. Potential stream channel changes and stream channel scour are related to the transport of bed material load consisting of the coarse bed material. Some commenters have urged the use of a 2D or 3D model of sediment transport on the site. A 2D model, while ideal for desert washes with the project elements, does not exist at this time. The FLUVIAL-12 model has been developed and applied to this area for 35 years; the model has also been calibrated with field data from 14 streams in the Western U. S. (Chang, H. H., "Generalized Computer Program FLUVIAL-12, Mathematical Model for Erodible Channels, Users Manual", 2006.). Thus, 1D models have proven adequate to provide reliable conclusions regarding sediment transport.

Principally, the storm flow is based on the hydrology study; and the sediment transport is computed based on the measured channel geometry, flow discharge, flow velocity, and sediment characteristics. The accuracy of sediment computation depends on the sediment transport formula used. Sediment transport for the study was computed using the Engelund-Hansen sediment formula in the computer model FLUVIAL-12 developed by Chang that has been in use for 35 years.

Although one comment faults the analysis for not modeling the impacts of the widely scattered solar dish towers as physical impediment, the posts in fact represent such a small component of the wash that they would pose a minimal barrier to flow. The solar dish towers will be scattered in the desert washes with a low density. The one, 2-foot diameter post is on 0.28 acre of land, or 3.14 square feet for a solar post on 12,197 square feet of land area. The ratio is 0.000257, or 0.026%. Such posts resemble tree trunks in natural streams; they have very small effects on channel roughness. These small effects were incorporated into the gross aggregated effects of the project on channel roughness, incorporated as a modest reduction of Manning's n, commensurate with the planned activities within the washes. The hydrological modeling shows that the placement of SunCatchers in washes would have no significant effect on the hydrology and the road crossings and other impacts would have no significant impacts on hydrology and sedimentation on the site. The results of the local scour analysis are discussed below. Even

though the impacts of the SunCatchers in these washes are minimal, in the preliminary LEDPA, a number of SunCatchers have been removed from the highest flow washes.

It should be emphasized that the hydrological methods used have been demonstrated to outperform alternative analytical approaches. Brownlie (1981) has made the most extensive evaluation of sediment transport formulas using a large collection of laboratory and field data. His evaluation is summarized in Figure 1. The Engelund-Hansen formula has better accuracy in comparison to other formulas. The conclusions of these standard analyses are that the project will not have significant effects on the sedimentation and transport from the site, in large part because of the flat terrain and the resulting low peak flow velocities across the site. BLM also addresses similar comments in Section D.4.13.3 in Appendix D of the FEIS.

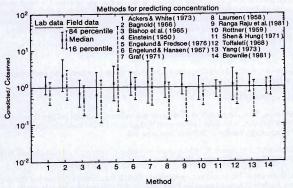


Figure 1. Evaluation of sediment transport formulas by Brownlie

#### 5. Scour

Scour is also a potential issue at the site, although hydrological modeling suggests that even during the 100-year storm event, the scour would be limited. The limited scour depths as simulated are related to the moderate and low-flow velocities on the relatively flat terrain at the project site. The wide and shallow water depth does not contribute to deep scour. The solar posts cause local disturbance to flow. The net effect of such disturbance is increased sediment flow in the local area of the post. The solar units will have footings imbedded in the washes for 17 feet. Because of the low-flow velocity, shallow water depth, and limited channel bed scour, the proposed solar units placed in the washes should not be damaged by the flow and potential stream channel changes. Solar dish towers will be scattered in the desert washes with a low density. The one, 2-foot diameter post is on 0.28 acre of land area, or 3.14 square feet for a solar post on 12,197 square feet of land area. The ratio is 0.000257, or 0.026%. Such posts resemble

tree trunks in natural streams; they have very small effects on channel roughness. Since the presence of the dishes in the washes will not have significant effects on the hydrology of the washes, removing them would not serve to significantly reduce impacts. In any event, even these non-significant impacts will be reduced by removing some SunCatchers from the higher flow washes.

#### 6. Downstream effects

Finally, since the project will not result in significant sediment transport, there are also no significant impacts in downstream receiving waters. The site currently has a positive sediment balance as a result of the embankments at Dunaway Road and the railroad. Given these local factors and the lack of increased soil loss and sediment transport, there is no significant sedimentation at the lower project boundary. It follows that there is no basis to expect impacts on the New River, Salton Sea, or any other receiving waterway. Insofar as the studies of the sedimentation at the site indicate that waters leaving the site boundary do not carry significant amounts of sediment, further analyses of the impacts of sediments the waters would not be carrying are not necessary.

# M. No Response Necessary

Comments received by the Corps and not responded to here have been noted, and no response is necessary.

# II. REFERENCES

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Y. Wood, R. Graham & S. Wells, "Surface mosaic map unit development for a desert pavement surface" J. Arid Envts. 52: 305-317 (2002).

# Appendix I Archaeological and Built Sites within the Area of Potential Effects for Each Build Alternative

This appendix contains the following tables:

PC	Train contains the resistance and re
	Table I-1, Newly Recorded and Updated Archaeological and Built Sites within the APE for the IVS Project (750 MW Alternative)Pages I-3 through I-33
•	Table I-2, Newly Recorded and Updated Archaeological and Built Sites within the APE for the 709 MW Alternative (Agency Preferred Alternative)
	Table I-3, Newly Recorded and Updated Archaeological and Built Sites within the APE for the 300 MW Alternative Pages I-63 through I-74
	Table I-4, Newly Recorded and Updated Archaeological and Built Sites within the APE for the Drainage Avoidance #1 Alternative
	Table I-5, Newly Recorded and Updated Archaeological and Built Sites within the APE for the Drainage  Avoidance #2 Alternative

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Table I-1 Newly Recorded and Updated Archaeological and Built Sites within the APE for the IVS Project (750 MW Alternative) (Table Note 1)

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	CJA-S2-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	CJA-S2-005	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	CJA-S2-006	200-Foot Buffer	Indeterminate	Very Low	Surveying
IVS Project: 750 MW Alternative	CJA-S2-007	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
IVS Project: 750 MW Alternative	CJA-S2-008	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Habitation
IVS Project: 750 MW Alternative	CJA-S2-010	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
IVS Project: 750 MW Alternative	CJA-S2-015	Phase II - 450 MW Area	Historic	Very Low	Refuse
IVS Project: 750 MW Alternative	CJA-S2-017	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-001 (CA-IMP-993)	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation with Human Remains
IVS Project: 750 MW Alternative	DRK-002 (CA-IMP- 2190)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-004 (CA-IMP- 2003)	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
IVS Project: 750 MW Alternative	DRK-005 (CA-IMP- 2002)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	DRK-009 (CA-IMP- 2194, CA-IMP-2193)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-010 (CA-IMP- 2004)	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
IVS Project: 750 MW Alternative	DRK-011	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-012	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-013	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-015	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-016 (CA-IMP- 2000)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-017	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-019	Phase I - 300 MW	Prehistoric	Very Low	Ceramics
IVS Project: 750 MW Alternative	DRK-020	Phase I - 300 MW	Historic	Very Low	Surveying
IVS Project: 750 MW Alternative	DRK-021	Phase I - 300 MW	Historic	Very Low	Surveying
IVS Project: 750 MW Alternative	DRK-022	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-023	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	DRK-024	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-025	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-026	Phase II - 450 MW Area	Historic	Very Low	Rock Feature
IVS Project: 750 MW Alternative	DRK-027	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-028	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-029	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-030	Phase II - 450 MW Area	Historic	Very Low	Refuse
IVS Project: 750 MW Alternative	DRK-031	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-032	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-033	Phase I - 300 MW	Historic	Very Low	Surveying
IVS Project: 750 MW Alternative	DRK-034	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-036	Phase II - 450 MW Area	Historic	Very Low	Surveying
IVS Project: 750 MW Alternative	DRK-037	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	DRK-042	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-043	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-044	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-046	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-047	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-048	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-049	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-050	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-051	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-052	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-139	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-140	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-141	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	DRK-143	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-146	Phase I - Laydown Area	Historic	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	DRK-147	Phase I - Laydown Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse
IVS Project: 750 MW Alternative	DRK-148	Phase I - Laydown Area	Multicomponent	Low to Moderate	Habitation Prehistoric/ Refuse
IVS Project: 750 MW Alternative	DRK-149	Phase I - Laydown Area	Historic	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	DRK-188	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramic
IVS Project: 750 MW Alternative	DRK-S2-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-S2-002	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
IVS Project: 750 MW Alternative	DRK-S2-006	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-S2-007	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extractional Processing
IVS Project: 750 MW Alternative	DRK-S2-008	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction
IVS Project: 750 MW Alternative	DRK-S2-009	Phase II - 450 MW Area	Historic	Very Low	Refuse
IVS Project: 750 MW Alternative	DRK-S2-010	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction Processing/ Refuse Rock Feature

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	DRK-S2-011	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
IVS Project: 750 MW Alternative	DRK-S2-012	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
IVS Project: 750 MW Alternative	DRK-S2-013	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-S2-014	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Refuse
IVS Project: 750 MW Alternative	DRK-\$2-015	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
IVS Project: 750 MW Alternative	DRK-S2-018	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation Prehistoric
IVS Project: 750 MW Alternative	DRK-S2-021	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation Prehistoric
IVS Project: 750 MW Alternative	DRK-S2-022	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-S2-023	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation Prehistoric
IVS Project: 750 MW Alternative	DRK-S2-026	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-S2-027	Phase II - 450 MW Area	Indeterminate	Low to Moderate	Rock Feature
IVS Project: 750 MW Alternative	DRK-S2-028	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Habitation Prehistoric/ Refuse
IVS Project: 750 MW Alternative	DRK-S2-029	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	DRK-S2-030	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	DRK-S2-031	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse
IVS Project: 750 MW Alternative	DRK-S2-032	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse
IVS Project: 750 MW Alternative	DRK-S2-033	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-002	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-003	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-010A	Phase I - 300 MW	Prehistoric	Very Low	Ceramics
IVS Project: 750 MW Alternative	EBR-015	Access Road	Historic	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	EBR-016	Access Road	Historic	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	EBR-017	200-Foot Buffer	Prehistoric	Moderate	Habitation with Human Remains
IVS Project: 750 MW Alternative	EBR-019 (CA-IMP- 4677, CA-IMP-1426, CA-IMP-997, CA-IMP- 995, CA-IMP-994, CA- IMP-2443, CA-IMP- 269)	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation with Human Remains

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	EBR-020	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-021	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-022	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
IVS Project: 750 MW Alternative	EBR-023	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-025	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-026	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing/ Ceramics
IVS Project: 750 MW Alternative	EBR-061	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-062	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-064	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-065	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-066	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Ceramics
IVS Project: 750 MW Alternative	EBR-069	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-070	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	EBR-072	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-073	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-077	Phase II - 450 MW Area	Prehistoric	Very Low	Ceramics
IVS Project: 750 MW Alternative	EBR-079	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-080	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-081	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-083	200-Foot Buffer	Historic	Very Low	Surveying
IVS Project: 750 MW Alternative	EBR-084	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-085	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Ceramics
IVS Project: 750 MW Alternative	EBR-086	Phase II - 450 MW Area	Historic	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	EBR-087	Phase II - 450 MW Area	Historic	Very Low	Refuse
IVS Project: 750 MW Alternative	EBR-092	Phase II - 450 MW Area	Historic	Very Low	Refuse/ Other Historic
IVS Project: 750 MW Alternative	EBR-093	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Ceramics

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	EBR-095	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-096	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-097	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
IVS Project: 750 MW Alternative	EBR-098	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-099	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-100	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-101	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-102	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-103	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-104	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-106	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-107	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-108	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	EBR-109	Phase II - 450 MW Area	Multicomponent	Very Low	Refuse
IVS Project: 750 MW Alternative	EBR-202	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-204	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-205	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-207	Access Road	Historic	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	EBR-213	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation Prehistoric with Human Remains/ Refuse
IVS Project: 750 MW Alternative	EBR-218	200-Foot Buffer	Prehistoric	Low to Moderate	Habitation Prehistoric
IVS Project: 750 MW Alternative	EBR-219	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EBR-222	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Habitation Prehistoric
IVS Project: 750 MW Alternative	EBR-223	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EJK-S2-001	Phase II - 450 MW Area	Indeterminate	Low to Moderate	Rock Feature
IVS Project: 750 MW Alternative	EJK-S2-002	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
IVS Project: 750 MW Alternative	EJK-S2-003	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	EJK-S2-004	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EJK-S2-005	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EJK-S2-006	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EJK-S2-010	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EJK-S2-011 (CA-IMP- 2093)	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EJK-S2-014	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EJK-S2-016	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	EJK-S2-017	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	HR-02	Phase II - 450 MW Area	Historic	Very Low	Transportation
IVS Project: 750 MW Alternative	HR-04	Phase II - 450 MW Area	Historic	Very Low	Transportation
IVS Project: 750 MW Alternative	H-06	Phase I - 300 MW	Historic	Very Low	Transportation
IVS Project: 750 MW Alternative	JF-001	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JF-003	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	JF-003A	Phase I - 300 MW	Historic	Very Low	Surveying
IVS Project: 750 MW Alternative	JF-004	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JF-005	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JF-006	Phase I - 300 MW	Historic	Very Low	Surveying
IVS Project: 750 MW Alternative	JF-008	Phase II - 450 MW Area	Historic	Very Low	Refuse
IVS Project: 750 MW Alternative	JF-015	Phase II - 450 MW Area	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	JF-018	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JF-019	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JF-021 (CA-IMP-4391)	Phase I - Water Line 150-Foot Corridor	Multicomponent	Moderate	Resource Extraction/ Processing/ Ceramics/ Refuse
IVS Project: 750 MW Alternative	JF-030	Phase I - Laydown Area	Historic	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	JF-031	Phase I - Laydown Area	Historic	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	JF-042	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	JF-043	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Refuse
IVS Project: 750 MW Alternative	JFB-004	Phase I - 300 MW	Historic	Very Low	Surveying
IVS Project: 750 MW Alternative	JFB-009A	Phase I - 300 MW	Historic	Very Low	Surveying
IVS Project: 750 MW Alternative	JFB-010	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
IVS Project: 750 MW Alternative	JFB-011	Phase II - 450 MW Area	Historic	Very Low	Refuse
IVS Project: 750 MW Alternative	JFB-012	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-001 (CA-IMP-3752, CA-IMP-3753, CA-IMP- 8731)	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
IVS Project: 750 MW Alternative	JM-002	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-003	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-005	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-006	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-007	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-008	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	JM-009 (CA-IMP-2083)	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-011	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-012	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-017	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-020	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-021	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse/ Rock Feature
IVS Project: 750 MW Alternative	JM-023	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-026	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Habitation Prehistoric Refuse
IVS Project: 750 MW Alternative	JM-027	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-028	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-029	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-030	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extractional Processing
IVS Project: 750 MW Alternative	JM-032	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	JM-033	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-035	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-036	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-037	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-038	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-039 (CA-IMP-4337)	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-041	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-042	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JM-043	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JMR-004	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JMR-005	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Feature/ Refuse
IVS Project: 750 MW Alternative	JMR-006	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Feature

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	JMR-008	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JMR-009	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JMR-011	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JMR-012	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JMR-013	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JMR-014	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
IVS Project: 750 MW Alternative	JMR-016	Phase II - 450 MW Area	Indeterminate	Very Low	Surveying
IVS Project: 750 MW Alternative	JMR-018	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	JMR-021	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Ceramics
IVS Project: 750 MW Alternative	JMR-025	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	KRM-001	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	KRM-S2-002	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	KRM-S2-003	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	LL-002A	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	LL-018	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	LL-019	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
IVS Project: 750 MW Alternative	LL-020	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	LL-024	200-Foot Buffer	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Rock Feature
IVS Project: 750 MW Alternative	LL-022A	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	LL-026	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	MN-S2-002	Phase II - 450 MW Area	Prehistoric	_	Travel
IVS Project: 750 MW Alternative	PRM-S2-001	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	PRM-S2-003	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	PRM-S2-009	Access Road	Multicomponent	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	PRM-S2-010	Access Road	Multicomponent	Low to Moderate	Resource Extraction Processing/ Ceramics Refuse

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750	PRM-S2-014	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
IVS Project: 750 MW Alternative	PRM-S2-016	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Other Prehistoric
IVS Project: 750 MW Alternative	PRM-S2-017	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	PRM-S2-018 (CA-IMP- 4343)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Habitation Prehistoric
IVS Project: 750 MW Alternative	PRM-S2-019	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
IVS Project: 750 MW Alternative	RAN-001	Phase I - 300 MW	Historic	Very Low	Surveying
IVS Project: 750 MW Alternative	RAN-002	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-004	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction Processing/ Rock Feature
IVS Project: 750 MW Alternative	RAN-005	Phase II - 450 MW Area	Historic	Very Low	Surveying
IVS Project: 750 MW Alternative	RAN-006	Phase II - 450 MW Area	Historic	Very Low	Refuse
IVS Project: 750 MW Alternative	RAN-007	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction Processing
IVS Project: 750 MW Alternative	RAN-008	Phase II - 450 MW Area	Historic	Very Low	Surveying

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	RAN-009	Phase II - 450 MW Area	Historic	Very Low	Refuse
IVS Project: 750 MW Alternative	RAN-010	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-011	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Refuse
IVS Project: 750 MW Alternative	RAN-012	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Features/ Ceramics/ Refuse
IVS Project: 750 MW Alternative	RAN-013	Phase II - 450 MW Area	Historic	Very Low	Refuse
IVS Project: 750 MW Alternative	RAN-014	Phase II - 450 MW Area	Historic	Very Low	Refuse
IVS Project: 750 MW Alternative	RAN-015	Phase II - 450 MW Area	Historic	Very Low	Refuse
IVS Project: 750 MW Alternative	RAN-016	Phase II - 450 MW Area	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	RAN-017	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Habitation Historic
IVS Project: 750 MW Alternative	RAN-018	Phase II - 450 MW Area	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	RAN-019	Phase II - 450 MW Area	Historic	Very Low	Refuse
IVS Project: 750 MW Alternative	RAN-020	Phase II - 450 MW Area	Historic	Very Low	Refuse

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	RAN-022	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Habitation Historic
IVS Project: 750 MW Alternative	RAN-024	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-025	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-026	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-027	Phase I - 300 MW	Historic	Very Low	Refuse/ Rock Feature
IVS Project: 750 MW Alternative	RAN-028	200-Foot Buffer	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-029	200-Foot Buffer	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-030 (CA-IMP- 2156)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-034	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Habitation Historic
IVS Project: 750 MW Alternative	RAN-035	Phase II - 450 MW Area	Historic	Very Low	Refuse
IVS Project: 750 MW Alternative	RAN-036	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Feature/ Refuse
IVS Project: 750 MW Alternative	RAN-055	Phase II - 450 MW Area	Prehistoric	Very Low	Habitation Prehistoric

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	RAN-057	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
IVS Project: 750 MW Alternative	RAN-061	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-063	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-064	Phase II - 450 MW Area	Indeterminate	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-066	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-067	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-068	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-069	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/
IVS Project: 750 MW Alternative	RAN-073	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/
IVS Project: 750 MW Alternative	RAN-074	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-081	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-092	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/
IVS Project: 750 MW Alternative	RAN-095	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	RAN-412C	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
IVS Project: 750 MW Alternative	RAN-412F	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
IVS Project: 750 MW Alternative	RAN-413	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-416	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Habitation Prehistoric
IVS Project: 750 MW Alternative	RAN-417	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-418	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
IVS Project: 750 MW Alternative	RAN-419	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-420	Phase I - Transmission Line 300-Foot Corridor	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Ceramics/ Refuse
IVS Project: 750 MW Alternative	RAN-424 (CA-IMP- 4578, CA-IMP-1007, CA-IMP-1006, CA-IMP- 1008, CA-IMP-8744, CA-IMP-4348)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Moderate	Habitation Prehistoric
IVS Project: 750 MW Alternative	RAN-426	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-428 (CA-IMP- 4344)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	RAN-430 (CA-IMP- 4342)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-431	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-433	Phase I - Transmission Line 300-Foot Corridor	Multicomponent	Very Low	Resource Extraction/ Processing/ Ceramics/ Refuse/ Rock Feature
IVS Project: 750 MW Alternative	RAN-434	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RANA-003	Phase I - 300 MW	Historic	Very Low	Military
IVS Project: 750 MW Alternative	RANA-004	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-S2-001	Phase I - 300 MW	Indeterminate	Very Low	Surveying
IVS Project: 750 MW Alternative	T-S2-002	Phase I - 300 MW	Prehistoric	Very Low	Travel
IVS Project: 750 MW Alternative	RAN-S2-005	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-S2-006	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/
IVS Project: 750 MW Alternative	RAN-S2-010	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/
IVS Project: 750 MW Alternative	RAN-S2-011H	Phase I - 300 MW	Historic	Very Low	Other Historic
IVS Project: 750 MW Alternative	RAN-S2-012H	Phase I - 300 MW	Historic	Very Low	Other Historic

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	RAN-S2-015	200-Foot Buffer	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	RAN-S2-018	Phase I - Laydown Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse
IVS Project: 750 MW Alternative	RAN-S2-019	200-Foot Buffer	Multicomponent	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	RAN-S2-020	200-Foot Buffer	Historic	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	S2-SLY-1	Phase I - Water Line 150-Foot Corridor	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Ceramics/ Refuse
IVS Project: 750 MW Alternative	S2-SLY-3	Phase I - Water Line 150-Foot Corridor	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Ceramics Refuse
IVS Project: 750 MW Alternative	S2-SLY-5	Phase I - Water Line 150-Foot Corridor	Prehistoric	Low to Moderate	Habitation Prehistoric
IVS Project: 750 MW Alternative	S2-SLY-25	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	S2-SLY-26	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse/ Surveying
IVS Project: 750 MW Alternative	S2-SLY-27	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse/ Surveying
IVS Project: 750 MW Alternative	S2-SLY-28	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	S2-SLY-29	Phase I - Water Line 150-Foot Corridor	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	S2-SLY-30	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	S2-SLY-31	Phase I - Water Line 150-Foot Corridor	Multicomponent	Low to Moderate	Refuse
IVS Project: 750 MW Alternative	S2-SLY-32	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse/ Surveying
IVS Project: 750 MW Alternative	S2-SLY-33	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	S2-SLY-34	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	S2-SLY-35	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	S2-SLY-36	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	S2-SLY-37	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	S2-SLY-38	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	S2-SLY-39	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	S2-SLY-40	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	S2-SLY-41	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	S2-SLY-42	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	S2-SLY-43	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	S2-SLY-44	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	S2-SLY-45	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	SM-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	SM-002	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	SM-003	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	SM-004	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	SM-005	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	SM-006	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	SM-S2-002	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
IVS Project: 750 MW Alternative	SM-S2-003	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
IVS Project: 750 MW Alternative	SM-S2-004	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
IVS Project: 750 MW Alternative	SM-S2-005	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	SM-S2-007	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	SM-S2-008	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	SM-S2-010	Phase I - 300 MW	Historic	Very Low	Rock Feature
IVS Project: 750 MW Alternative	SM-S2-011	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
IVS Project: 750 MW Alternative	SM-S2-012	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	SM-S2-020	Phase II - 450 MW Area	Historic	Low to Moderate	Surveying
IVS Project: 750 MW Alternative	SM-S2-021	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	SM-S2-031	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	SM-S2-032	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	SM-S2-039	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
IVS Project: 750 MW Alternative	SM-S2-040	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	SM-S2-041	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
IVS Project: 750 MW Alternative	T-02	Phase II - 450 MW Area	Prehistoric	Very Low	Travel

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	T-03	Phase II - 450 MW Area	Multicomponent	Very Low	Travel
IVS Project: 750 MW Alternative	T-06	Access Road	Multicomponent	Very Low	Travel
IVS Project: 750 MW Alternative	T-17	Phase I - 300 MW	Prehistoric	Very Low	Travel
IVS Project: 750 MW Alternative	T-18	Phase I - 300 MW	Prehistoric	Very Low	Travel
IVS Project: 750 MW Alternative	T-21A	Phase I - 300 MW	Prehistoric	Very Low	Travel
IVS Project: 750 MW Alternative	T-21B	Phase I - 300 MW	Prehistoric	Very Low	Travel
IVS Project: 750 MW Alternative	T-42	Phase I - 300 MW	Prehistoric	Very Low	Travel
IVS Project: 750 MW Alternative	T-43A	Phase I - 300 MW	Prehistoric	Very Low	Travel
IVS Project: 750 MW Alternative	T-43B	Phase I - 300 MW	Prehistoric	Very Low	Travel
IVS Project: 750 MW Alternative	T-52	Phase II - 450 MW Area	Prehistoric	Very Low	Travel
IVS Project: 750 MW Alternative	County Gravel Mine	Phase I - 300 MW & Phase II - 450 MW Area	Historic	None	Extraction/ Gravel Mining
IVS Project: 750 MW Alternative	Wixon Gravel	Access Road	Historic	None	Extraction/ Gravel Mining

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	National Historic Trail	Phase I - 300 MW & Phase II - 450 MW Area	Historic	Very Low	Transportation
IVS Project: 750 MW Alternative	Part of San Diego and Arizona Railroad	½-mile architectural buffer	Historic - Built	None	Transportation
IVS Project: 750 MW Alternative	Plaster City	½-mile architectural buffer	Historic - Built	None	Mining/ Processing
IVS Project: 750 MW Alternative	Part of US Gypsum Rail Line	½-mile architectural buffer	Historic - Built	None	Transportation
IVS Project: 750 MW Alternative	CA-IMP-7886 (Highway 80)	1/2-mile architectural buffer	Historic - Built	None	Transportation
IVS Project: 750 MW Alternative	Dixie Drain	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
IVS Project: 750 MW Alternative	Fern Canal and Drain	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
IVS Project: 750 MW Alternative	Fig Canal	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
IVS Project: 750 MW Alternative	Forget-Me-Not Canal	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
IVS Project: 750 MW Alternative	Foxglove Canal	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
IVS Project: 750 MW Alternative	Salt Creek Drain 2	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
IVS Project: 750 MW Alternative	Liebert Road Residence	Phase I - Water Line 150-Foot Corridor	Historic - Built	- 5	Habitation
IVS Project: 750 MW Alternative	Fern Check	Phase I - Water Line 150-Foot Corridor	Historic - Built	-	Water Conveyance

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
IVS Project: 750 MW Alternative	West Side Main Canal, including Pump 6	Phase I - Water Line 150-Foot Corridor	Historic - Built	-	Water Conveyance

Table Note 1: Does not include isolated occurrences

Table Key: APE = Area of Potential Effects; MW = megawatts.

Table I-2 Newly Recorded and Updated Archaeological and Built Sites within the APE for the 709 MW Alternative (Agency Preferred Alternative) (Table Note 1)

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	CJA-S2-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/Processing
709 MW Alternative: Agency Preferred Alternative	CJA-S2-005	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	CJA-S2-006	200-Foot Buffer	Indeterminate	Very Low	Surveying
709 MW Alternative: Agency Preferred Alternative	CJA-S2-007	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
709 MW Alternative: Agency Preferred Alternative	CJA-S2-008	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Habitation
709 MW Alternative: Agency Preferred Alternative	CJA-S2-010	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
709 MW Alternative: Agency Preferred Alternative	CJA-S2-015	Phase II - 450 MW Area	Historic	Very Low	Refuse
709 MW Alternative: Agency Preferred Alternative	CJA-S2-017	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	County Gravel Mine	Phase I - 300 MW & Phase II - 450 MW Area	Historic	None	Extraction/ Gravel Mining
709 MW Alternative: Agency Preferred Alternative	Dixie Drain	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
709 MW Alternative: Agency Preferred Alternative	DRK-001 (CA- IMP-993)	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation with Human Remains
709 MW Alternative: Agency Preferred Alternative	DRK-002 (CA- IMP-2190)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	DRK-004 (CA- IMP-2003)	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
709 MW Alternative: Agency Preferred Alternative	DRK-005 (CA- IMP-2002)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-009 (CA- IMP-2194, CA- IMP-2193)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-010 (CA- IMP-2004)	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
709 MW Alternative: Agency Preferred Alternative	DRK-011	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-012	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-013	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-015	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-016 (CA- IMP-2000)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-017	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-019	Phase I - 300 MW	Prehistoric	Very Low	Ceramics
709 MW Alternative: Agency Preferred Alternative	DRK-020	Phase I - 300 MW	Historic	Very Low	Surveying
709 MW Alternative: Agency Preferred Alternative	DRK-021	Phase I - 300 MW	Historic	Very Low	Surveying

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	DRK-022	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-023	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-024	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-025	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-026	Phase II - 450 MW Area	Historic	Very Low	Rock Feature
709 MW Alternative: Agency Preferred Alternative	DRK-027	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-028	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-029	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-030	Phase II - 450 MW Area	Historic	Very Low	Refuse
709 MW Alternative: Agency Preferred Alternative	DRK-031	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-032	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-033	Phase I - 300 MW	Historic	Very Low	Surveying
709 MW Alternative: Agency Preferred Alternative	DRK-034	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	DRK-036	Phase II - 450 MW Area	Historic	Very Low	Surveying
709 MW Alternative: Agency Preferred Alternative	DRK-037	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-042	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-043	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-044	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-046	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-047	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-048	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-049	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-050	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-051	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-052	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-139	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	DRK-140	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-141	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-143	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-146	Phase I - Laydown Area	Historic	Low to Moderate	Refuse
709 MW Alternative: Agency Preferred Alternative	DRK-147	Phase I - Laydown Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse
709 MW Alternative: Agency Preferred Alternative	DRK-148	Phase I - Laydown Area	Multicomponent	Low to Moderate	Habitation Prehistoric/ Refuse
709 MW Alternative: Agency Preferred Alternative	DRK-149	Phase I - Laydown Area	Historic	Low to Moderate	Refuse
709 MW Alternative: Agency Preferred Alternative	DRK-188	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramic
709 MW Alternative: Agency Preferred Alternative	DRK-S2-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-S2-006	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-S2-007	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-S2-008	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-S2-009	Phase II - 450 MW Area	Historic	Very Low	Refuse

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	DRK-S2-010	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Refuse/ Rock Feature
709 MW Alternative: Agency Preferred Alternative	DRK-S2-011	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
709 MW Alternative: Agency Preferred Alternative	DRK-S2-012	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
709 MW Alternative: Agency	DRK-S2-013	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-S2-014	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Refuse
709 MW Alternative: Agency Preferred Alternative	DRK-\$2-015	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
709 MW Alternative: Agency Preferred Alternative	DRK-S2-018	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation Prehistoric
709 MW Alternative: Agency Preferred Alternative	DRK-S2-021	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation Prehistoric
709 MW Alternative: Agency Preferred Alternative	DRK-S2-023	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation Prehistoric
709 MW Alternative: Agency Preferred Alternative	DRK-S2-026	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-S2-027	Phase II - 450 MW Area	Indeterminate	Low to Moderate	Rock Feature
709 MW Alternative: Agency Preferred Alternative	DRK-S2-028	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Habitation Prehistoric/ Refuse
709 MW Alternative: Agency Preferred Alternative	DRK-S2-029	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	DRK-S2-030	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	DRK-S2-031	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse
709 MW Alternative: Agency Preferred Alternative	DRK-S2-032	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse
709 MW Alternative: Agency Preferred Alternative	DRK-S2-033	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-002	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-003	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-010A	Phase I - 300 MW	Prehistoric	Very Low	Ceramics
709 MW Alternative: Agency Preferred Alternative	EBR-015	Access Road	Historic	Low to Moderate	Refuse
709 MW Alternative: Agency Preferred Alternative	EBR-016	Access Road	Historic	Low to Moderate	Refuse
709 MW Alternative: Agency Preferred Alternative	EBR-017	200-Foot Buffer	Prehistoric	Moderate	Habitation with Human Remains

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	EBR-019 (CA- IMP-4677, CA- IMP-1426, CA- IMP-997, CA- IMP-994, CA- IMP-994, CA- IMP-269)	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation with Human Remains
709 MW Alternative: Agency Preferred Alternative	EBR-020	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-021	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-022	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
709 MW Alternative: Agency Preferred Alternative	EBR-023	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-025	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-026	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing/ Ceramics
709 MW Alternative: Agency Preferred Alternative	EBR-061	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-062	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-064	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	EBR-065	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-066	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Ceramics
709 MW Alternative: Agency Preferred Alternative	EBR-069	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-070	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-072	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-073	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-077	Phase II - 450 MW Area	Prehistoric	Very Low	Ceramics
709 MW Alternative: Agency Preferred Alternative	EBR-079	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-080	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-081	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-084	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-085	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Ceramics
709 MW Alternative: Agency Preferred Alternative	EBR-086	Phase II - 450 MW Area	Historic	Low to Moderate	Refuse

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	EBR-087	Phase II - 450 MW Area	Historic	Very Low	Refuse
709 MW Alternative: Agency Preferred Alternative	EBR-092	Phase II - 450 MW Area	Historic	Very Low	Refuse/ Other Historic
709 MW Alternative: Agency Preferred Alternative	EBR-093	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Ceramics
709 MW Alternative: Agency Preferred Alternative	EBR-095	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-096	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-097	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
709 MW Alternative: Agency Preferred Alternative	EBR-098	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-099	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-100	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-101	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-102	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-103	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-104	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	EBR-106	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-107	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-108	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-109	Phase II - 450 MW Area	Multicomponent	Very Low	Refuse
709 MW Alternative: Agency Preferred Alternative	EBR-202	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-204	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-205	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-207	Access Road	Historic	Low to Moderate	Refuse
709 MW Alternative: Agency Preferred Alternative	EBR-213	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation Prehistoric with Human Remains/ Refuse
709 MW Alternative: Agency Preferred Alternative	EBR-218	200-Foot Buffer	Prehistoric	Low to Moderate	Habitation Prehistoric
709 MW Alternative: Agency Preferred Alternative	EBR-219	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EBR-222	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Habitation Prehistoric
709 MW Alternative: Agency Preferred Alternative	EBR-223	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	EJK-S2-001	Phase II - 450 MW Area	Indeterminate	Low to Moderate	Rock Feature
709 MW Alternative: Agency Preferred Alternative	EJK-S2-002	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
709 MW Alternative: Agency Preferred Alternative	EJK-S2-003	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
709 MW Alternative: Agency Preferred Alternative	EJK-S2-004	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EJK-S2-005	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EJK-S2-006	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EJK-S2-010	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EJK-S2-011 (CA-IMP-2093)	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EJK-S2-014	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EJK-S2-016	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	EJK-S2-017	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	Fern Canal and Drain	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
709 MW Alternative: Agency Preferred Alternative	Fern Check	Phase I - Water Line 150-Foot Corridor	Historic - Built		Water Conveyance

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	Fig Canal	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
709 MW Alternative: Agency Preferred Alternative	Forget-Me-Not Canal	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
709 MW Alternative: Agency Preferred Alternative	Foxglove Canal	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
709 MW Alternative: Agency Preferred Alternative	H-06	Phase I - 300 MW	Historic	Very Low	Transportation
709 MW Alternative: Agency Preferred Alternative	Highway 80 (CA- IMP-7886)	½-mile architectural buffer	Historic - Built	None	Transportation
709 MW Alternative: Agency Preferred Alternative	HR-02	Phase II - 450 MW Area	Historic	Very Low	Transportation
709 MW Alternative: Agency Preferred Alternative	HR-04	Phase II - 450 MW Area	Historic	Very Low	Transportation
709 MW Alternative: Agency Preferred Alternative	JF-001	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JF-003	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JF-003A	Phase I - 300 MW	Historic	Very Low	Surveying
709 MW Alternative: Agency Preferred Alternative	JF-004	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JF-005	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/
709 MW Alternative: Agency Preferred Alternative	JF-006	Phase I - 300 MW	Historic	Very Low	Surveying

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	JF-008	Phase II - 450 MW Area	Historic	Very Low	Refuse
709 MW Alternative: Agency Preferred Alternative	JF-015	Phase II - 450 MW Area	Historic	Low to Moderate	Surveying
709 MW Alternative: Agency Preferred Alternative	JF-018	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JF-019	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JF-021 (CA-IMP- 4391)	Phase I - Water Line 150-Foot Corridor	Multicomponent	Moderate	Resource Extraction/ Processing/ Ceramics/ Refuse
709 MW Alternative: Agency Preferred Alternative	JF-030	Phase I - Laydown Area	Historic	Low to Moderate	Refuse
709 MW Alternative: Agency Preferred Alternative	JF-031	Phase I - Laydown Area	Historic	Low to Moderate	Refuse
709 MW Alternative: Agency Preferred Alternative	JF-042	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
709 MW Alternative: Agency Preferred Alternative	JF-043	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Refuse
709 MW Alternative: Agency Preferred Alternative	JFB-004	Phase I - 300 MW	Historic	Very Low	Surveying
709 MW Alternative: Agency Preferred Alternative	JFB-009A	Phase I - 300 MW	Historic	Very Low	Surveying
709 MW Alternative: Agency Preferred Alternative	JFB-010	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
709 MW Alternative: Agency Preferred Alternative	JFB-011	Phase II - 450 MW Area	Historic	Very Low	Refuse

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	JFB-012	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-001 (CA- IMP-3752, CA- IMP-3753, CA- IMP-8731)	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
709 MW Alternative: Agency Preferred Alternative	JM-002	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-003	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-005	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-006	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-007	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-008	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-009 (CA- IMP-2083)	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-011	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-012	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-017	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	JM-020	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-021	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse/ Rock Feature
709 MW Alternative: Agency Preferred Alternative	JM-023	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-026	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Habitation Prehistoric/ Refuse
709 MW Alternative: Agency Preferred Alternative	JM-027	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-028	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-029	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-030	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-032	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-033	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-035	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-036	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-037	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	JM-039 (CA- IMP-4337)	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-041	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-042	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JM-043	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JMR-004	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JMR-005	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Feature/ Refuse
709 MW Alternative: Agency Preferred Alternative	JMR-006	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Feature
709 MW Alternative: Agency Preferred Alternative	JMR-008	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JMR-009	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JMR-011	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JMR-012	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JMR-013	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JMR-014	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	JMR-016	Phase II - 450 MW Area	Indeterminate	Very Low	Surveying
709 MW Alternative: Agency Preferred Alternative	JMR-018	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	JMR-025	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	KRM-001	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	KRM-S2-002	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	KRM-S2-003	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	Liebert Road Residence	Phase I - Water Line 150-Foot Corridor	Historic - Built		Habitation
709 MW Alternative: Agency Preferred Alternative	LL-002A	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	LL-003	Exclusion Area	Historic	Refuse	Refuse
709 MW Alternative: Agency Preferred Alternative	LL-018	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	LL-019	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
709 MW Alternative: Agency Preferred Alternative	LL-020	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	LL-022A	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	LL-024	200-Foot Buffer	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Rock Feature
709 MW Alternative: Agency Preferred Alternative	LL-026	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	MN-S2-002	Phase II - 450 MW Area	Prehistoric		Travel
709 MW Alternative: Agency Preferred Alternative	National Historic Trail	Phase I - 300 MW & Phase II - 450 MW Area	Historic	Very Low	Transportation
709 MW Alternative: Agency Preferred Alternative	Plaster City	½-mile architectural buffer	Historic - Built	None	Mining/ Processing
709 MW Alternative: Agency Preferred Alternative	Portion of San Diego and Arizona Railroad	½-mile architectural buffer	Historic - Built	None	Transportation
709 MW Alternative: Agency Preferred Alternative	Portion of US Gypsum Rail Line	½-rnile architectural buffer	Historic - Built	None	Transportation
709 MW Alternative: Agency Preferred Alternative	PRM-S2-001	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	PRM-S2-003	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	PRM-S2-009	Access Road	Multicomponent	Low to Moderate	Refuse
709 MW Alternative: Agency Preferred Alternative	PRM-S2-010	Access Road	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Ceramics/ Refuse
709 MW Alternative: Agency Preferred Alternative	PRM-S2-014	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	PRM-S2-016	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Other Prehistoric
709 MW Alternative: Agency Preferred Alternative	PRM-S2-017	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	PRM-S2-018 (CA-IMP-4343)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Habitation Prehistoric
709 MW Alternative: Agency Preferred Alternative	PRM-S2-019	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
709 MW Alternative: Agency Preferred Alternative	RAN-001	Phase I - 300 MW	Historic	Very Low	Surveying
709 MW Alternative: Agency Preferred Alternative	RAN-002	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-004	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Feature
709 MW Alternative: Agency Preferred Alternative	RAN-005	Phase II - 450 MW Area	Historic	Very Low	Surveying
709 MW Alternative: Agency Preferred Alternative	RAN-006	Phase II - 450 MW Area	Historic	Very Low	Refuse
709 MW Alternative: Agency Preferred Alternative	RAN-007	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-008	Phase II - 450 MW Area	Historic	Very Low	Surveying
709 MW Alternative: Agency Preferred Alternative	RAN-009	Phase II - 450 MW Area	Historic	Very Low	Refuse
709 MW Alternative: Agency Preferred Alternative	RAN-010	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	RAN-011	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Refuse
709 MW Alternative: Agency Preferred Alternative	RAN-012	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Features/ Ceramics/ Refuse
709 MW Alternative: Agency Preferred Alternative	RAN-013	Phase II - 450 MW Area	Historic	Very Low	Refuse
709 MW Alternative: Agency Preferred Alternative	RAN-015	Phase II - 450 MW Area	Historic	Very Low	Refuse
709 MW Alternative: Agency Preferred Alternative	RAN-016	Phase II - 450 MW Area	Historic	Low to Moderate	Surveying
709 MW Alternative: Agency Preferred Alternative	RAN-017	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Habitation Historic
709 MW Alternative: Agency Preferred Alternative	RAN-018	Phase II - 450 MW Area	Historic	Low to Moderate	Surveying
709 MW Alternative: Agency Preferred Alternative	RAN-019	Phase II - 450 MW Area	Historic	Very Low	Refuse
709 MW Alternative: Agency Preferred Alternative	RAN-020	Phase II - 450 MW Area	Historic	Very Low	Refuse
709 MW Alternative: Agency Preferred Alternative	RAN-022	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Habitation Historic
709 MW Alternative: Agency Preferred Alternative	RAN-026	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	RAN-027	Phase I - 300 MW	Historic	Very Low	Refuse/ Rock Feature
709 MW Alternative: Agency Preferred Alternative	RAN-030 (CA- IMP-2156)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-034	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Habitation Historic
709 MW Alternative: Agency Preferred Alternative	RAN-035	Phase II - 450 MW Area	Historic	Very Low	Refuse
709 MW Alternative: Agency Preferred Alternative	RAN-036	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Feature/ Refuse
709 MW Alternative: Agency Preferred Alternative	RAN-055	Phase II - 450 MW Area	Prehistoric	Very Low	Habitation Prehistoric
709 MW Alternative: Agency Preferred Alternative	RAN-057	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
709 MW Alternative: Agency Preferred Alternative	RAN-061	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-063	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-064	Phase II - 450 MW Area	Indeterminate	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-066	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-067	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	RAN-068	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-069	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-073	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-074	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-081	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-092	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-095	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-412C	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
709 MW Alternative: Agency Preferred Alternative	RAN-412F	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
709 MW Alternative: Agency Preferred Alternative	RAN-413	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-416	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Habitation Prehistoric
709 MW Alternative: Agency Preferred Alternative	RAN-417	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-418	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	RAN-419	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-420	Phase I - Transmission Line 300-Foot Corridor	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Ceramics/ Refuse
709 MW Alternative: Agency Preferred Alternative	RAN-424 (CA- IMP-4578, CA- IMP-1007, CA- IMP-1006, CA- IMP-1008, CA- IMP-8744, CA- IMP-4348)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Moderate	Habitation Prehistoric
709 MW Alternative: Agency Preferred Alternative	RAN-426	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-428 (CA- IMP-4344)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-430 (CA- IMP-4342)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-431	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-433	Phase I - Transmission Line 300-Foot Corridor	Multicomponent	Very Low	Resource Extraction/ Processing/ Ceramics/ Refuse/ Rock Feature
709 MW Alternative: Agency Preferred Alternative	RAN-434	Phase I - Transmission Line 300-Foot Comidor	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RANA-003	Phase I - 300 MW	Historic	Very Low	Military

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	RAN-S2-001	Phase I - 300 MW	Indeterminate	Very Low	Surveying
709 MW Alternative: Agency Preferred Alternative	RAN-S2-005	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-S2-006	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-S2-010	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	RAN-S2-011H	Phase I - 300 MW	Historic	Very Low	Other Historic
709 MW Alternative: Agency Preferred Alternative	RAN-S2-012H	Phase I - 300 MW	Historic	Very Low	Other Historic
709 MW Alternative: Agency Preferred Alternative	RAN-S2-018	Phase I - Laydown Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse
709 MW Alternative: Agency Preferred Alternative	RAN-S2-019	200-Foot Buffer	Multicomponent	Low to Moderate	Refuse
709 MW Alternative: Agency Preferred Alternative	RAN-S2-020	200-Foot Buffer	Historic	Low to Moderate	Refuse
709 MW Alternative: Agency Preferred Alternative	S2-SLY-1	Phase I - Water Line 150-Foot Corridor	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Ceramics/ Refuse
709 MW Alternative: Agency Preferred Alternative	S2-SLY-25	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse
709 MW Alternative: Agency Preferred Alternative	S2-SLY-27	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse/ Surveying
709 MW Alternative: Agency Preferred Alternative	S2-SLY-29	Phase I - Water Line 150-Foot Corridor	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	S2-SLY-31	Phase I - Water Line 150-Foot Corridor	Multicomponent	Low to Moderate	Refuse
709 MW Alternative: Agency Preferred Alternative	S2-SLY-32	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse/ Surveying
709 MW Alternative: Agency Preferred Alternative	S2-SLY-33	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
709 MW Alternative: Agency Preferred Alternative	S2-SLY-34	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
709 MW Alternative: Agency Preferred Alternative	S2-SLY-35	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
709 MW Alternative: Agency Preferred Alternative	S2-SLY-36	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
709 MW Alternative: Agency Preferred Alternative	S2-SLY-37	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
709 MW Alternative: Agency Preferred Alternative	S2-SLY-38	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
709 MW Alternative: Agency Preferred Alternative	S2-SLY-42	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
709 MW Alternative: Agency Preferred Alternative	S2-SLY-43	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
709 MW Alternative: Agency Preferred Alternative	S2-SLY-45	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
709 MW Alternative: Agency Preferred Alternative	S2-SLY-5	Phase I - Water Line 150-Foot Corridor	Prehistoric	Low to Moderate	Habitation Prehistoric
709 MW Alternative: Agency Preferred Alternative	Salt Creek Drain 2	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance

Alternative	Temporary Site Name (Trinomial)	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
709 MW Alternative: Agency Preferred Alternative	SM-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	SM-002	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	SM-003	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	SM-004	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	SM-005	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	SM-006	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	SM-S2-002	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
709 MW Alternative: Agency Preferred Alternative	SM-S2-003	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
709 MW Alternative: Agency Preferred Alternative	SM-S2-004	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
709 MW Alternative: Agency Preferred Alternative	SM-S2-005	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
709 MW Alternative: Agency Preferred Alternative	SM-S2-007	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	SM-S2-008	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
709 MW Alternative: Agency Preferred Alternative	SM-S2-010	Phase I - 300 MW	Historic	Very Low	Rock Feature

Table I-3 Newly Recorded and Updated Archaeological and Built Sites within the APE for the 300 MW Alternative (Table Note 1)

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Burled Deposits Based on Geomorphologic Information	Site Class
300 MW Alternative	CJA-S2-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-002 (CA-IMP- 2190)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-004 (CA-IMP- 2003)	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
300 MW Alternative	DRK-005 (CA-IMP- 2002)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-009 (CA-IMP- 2194, CA-IMP-2193)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-010 (CA-IMP- 2004)	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
300 MW Alternative	DRK-011	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-012	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-013	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-015	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-016 (CA-IMP- 2000)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-017	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
300 MW Alternative	DRK-019	Phase I - 300 MW	Prehistoric	Very Low	Ceramics
300 MW Alternative	DRK-020	Phase I - 300 MW	Historic	Very Low	Surveying
300 MW Alternative	DRK-021	Phase I - 300 MW	Historic	Very Low	Surveying
300 MW Alternative	DRK-022	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-024	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-033	Phase I - 300 MW	Historic	Very Low	Surveying
300 MW Alternative	DRK-034	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-042	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-043	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-044	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-046	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-047	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-048	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-049	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-050	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
300 MW Alternative	DRK-051	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-052	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	DRK-139	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
300 MW Alternative	DRK-140	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
300 MW Alternative	DRK-141	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
300 MW Alternative	DRK-143	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
300 MW Alternative	DRK-146	Phase I - Laydown Area	Historic	Low to Moderate	Refuse
300 MW Alternative	DRK-147	Phase I - Laydown Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse
300 MW Alternative	DRK-148	Phase I - Laydown Area	Multicomponent	Low to Moderate	Habitation Prehistoric Refuse
300 MW Alternative	DRK-149	Phase I - Laydown Area	Historic	Low to Moderate	Refuse
300 MW Alternative	DRK-188	Phase I - Laydown Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramic
300 MW Alternative	DRK-S2-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	EBR-010A	Phase I - 300 MW	Prehistoric	Very Low	Ceramics
300 MW Alternative	EBR-015	Access Road	Historic	Low to Moderate	Refuse
300 MW Alternative	EBR-016	Access Road	Historic	Low to Moderate	Refuse
300 MW Alternative	EBR-020	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction. Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
300 MW Alternative	EBR-021	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	EBR-022	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
300 MW Alternative	EBR-023	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	EBR-025	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	EBR-026	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing/ Ceramics
300 MW Alternative	EBR-061	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	EBR-062	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	EBR-064	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	EBR-065	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	EBR-207	Access Road	Historic	Low to Moderate	Refuse
300 MW Alternative	H-06	Phase I - 300 MW	Historic	Very Low	Transportation
300 MW Alternative	JF-003A	Phase I - 300 MW	Historic	Very Low	Surveying
300 MW Alternative	JF-004	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	JF-006	Phase I - 300 MW	Historic	Very Low	Surveying

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
300 MW Alternative	JF-021 (CA-IMP-4391)	Phase I - Water Line 150-Foot Corridor	Multicomponent	Moderate	Resource Extraction/ Processing/ Ceramics/ Refuse
300 MW Alternative	JF-030	Phase I - Laydown Area	Historic	Low to Moderate	Refuse
300 MW Alternative	JF-031	Phase I - Laydown Area	Historic	Low to Moderate	Refuse
300 MW Alternative	JFB-004	Phase I - 300 MW	Historic	Very Low	Surveying
300 MW Alternative	JFB-009A	Phase I - 300 MW	Historic	Very Low	Surveying
300 MW Alternative	JFB-010	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
300 MW Alternative	PRM-S2-003	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	PRM-S2-009	Access Road	Multicomponent	Low to Moderate	Refuse
300 MW Alternative	PRM-S2-010	Access Road	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Ceramics Refuse
300 MW Alternative	PRM-S2-018 (CA-IMP- 4343)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Habitation Prehistoric
300 MW Alternative	PRM-S2-019	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
300 MW Alternative	RAN-001	Phase I - 300 MW	Historic	Very Low	Surveying
300 MW Alternative	RAN-002	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction Processing
300 MW Alternative	RAN-004	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction Processing/ Rock Feature

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
300 MW Alternative	RAN-022	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Habitation Historic
300 MW Alternative	RAN-024	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	RAN-025	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	RAN-026	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	RAN-027	Phase I - 300 MW	Historic	Very Low	Refuse/ Rock Feature
300 MW Alternative	RAN-030 (CA-IMP- 2156)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	RAN-036	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Feature/ Refuse
300 MW Alternative	RAN-412C	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
300 MW Alternative	RAN-412F	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
300 MW Alternative	RAN-413	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
300 MW Alternative	RAN-416	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Habitation Prehistoric
300 MW Alternative	RAN-417	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
300 MW Alternative	RAN-418	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
300 MW Alternative	RAN-419	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
300 MW Alternative	RAN-420	Phase I - Transmission Line 300-Foot Corridor	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Ceramics/ Refuse
300 MW Alternative	RAN-424 (CA-IMP- 4578, CA-IMP-1007, CA-IMP-1006, CA-IMP- 1008, CA-IMP-8744, CA-IMP-4348)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Moderate	Habitation Prehistoric
300 MW Alternative	RAN-426	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
300 MW Alternative	RAN-428 (CA-IMP- 4344)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
300 MW Alternative	RAN-430 (CA-IMP- 4342)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
300 MW Alternative	RAN-431	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	RAN-433	Phase I - Transmission Line 300-Foot Corridor	Multicomponent	Very Low	Resource Extraction/ Processing/ Ceramics/ Refuse/ Rock Feature
300 MW Alternative	RAN-434	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	RANA-003	Phase I - 300 MW	Historic	Very Low	Military
300 MW Alternative	RAN-S2-001	Phase I - 300 MW	Indeterminate	Very Low	Surveying
300 MW Alternative	T-S2-002	Phase I - 300 MW	Prehistoric	Very Low	Travel

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
300 MW Alternative	RAN-S2-005	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	RAN-S2-006	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	RAN-S2-010	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	RAN-S2-011H	Phase I - 300 MW	Historic	Very Low	Other Historic
300 MW Alternative	RAN-S2-012H	Phase I - 300 MW	Historic	Very Low	Other Historic
300 MW Alternative	RAN-S2-015	200-Foot Buffer	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	RAN-S2-018	Phase I - Laydown Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse
300 MW Alternative	RAN-S2-019	200-Foot Buffer	Multicomponent	Low to Moderate	Refuse
300 MW Alternative	RAN-S2-020	200-Foot Buffer	Historic	Low to Moderate	Refuse
300 MW Alternative	S2-SLY-1	Phase I - Water Line 150-Foot Corridor	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Ceramics/ Refuse
300 MW Alternative	S2-SLY-3	Phase I - Water Line 150-Foot Corridor	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Ceramics/ Refuse
300 MW Alternative	S2-SLY-5	Phase I - Water Line 150-Foot Corridor	Prehistoric	Low to Moderate	Habitation Prehistoric
300 MW Alternative	S2-SLY-25	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse
300 MW Alternative	S2-SLY-26	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse/ Surveying

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
300 MW Alternative	S2-SLY-27	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse/ Surveying
300 MW Alternative	S2-SLY-28	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse
300 MW Alternative	S2-SLY-29	Phase I - Water Line 150-Foot Corridor	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse
300 MW Alternative	S2-SLY-30	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse
300 MW Alternative	S2-SLY-31	Phase I - Water Line 150-Foot Corridor	Multicomponent	Low to Moderate	Refuse
300 MW Alternative	S2-SLY-32	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Refuse/ Surveying
300 MW Alternative	S2-SLY-33	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
300 MW Alternative	S2-SLY-34	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
300 MW Alternative	S2-SLY-35	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
300 MW Alternative	S2-SLY-36	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
300 MW Alternative	S2-SLY-37	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
300 MW Alternative	S2-SLY-38	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
300 MW Alternative	S2-SLY-39	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
300 MW Alternative	S2-SLY-40	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
300 MW Alternative	S2-SLY-41	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
300 MW Alternative	S2-SLY-42	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
300 MW Alternative	S2-SLY-43	Phase 1 - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
300 MW Alternative	S2-SLY-44	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
300 MW Alternative	S2-SLY-45	Phase I - Water Line 150-Foot Corridor	Historic	Low to Moderate	Surveying
300 MW Alternative	SM-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	SM-002	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	SM-003	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	SM-004	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	SM-S2-002	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
300 MW Alternative	SM-S2-003	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
300 MW Alternative	SM-S2-004	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
300 MW Alternative	SM-S2-007	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	SM-S2-008	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
300 MW Alternative	SM-S2-010	Phase I - 300 MW	Historic	Very Low	Rock Feature
300 MW Alternative	SM-S2-011	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
300 MW Alternative	SM-S2-012	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	SM-S2-039	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
300 MW Alternative	SM-S2-040	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	SM-S2-041	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
300 MW Alternative	T-06	Access Road	Multicomponent	Very Low	Travel
300 MW Alternative	T-17	Phase I - 300 MW	Prehistoric	Very Low	Travel
300 MW Alternative	T-18	Phase I - 300 MW	Prehistoric	Very Low	Travel
300 MW Alternative	T-21A	Phase I - 300 MW	Prehistoric	Very Low	Travel
300 MW Alternative	T-21B	Phase I - 300 MW	Prehistoric	Very Low	Travel
300 MW Alternative	T-42	Phase I - 300 MW	Prehistoric	Very Low	Travel
300 MW Alternative	T-43A	Phase I - 300 MW	Prehistoric	Very Low	Travel
300 MW Alternative	T-43B	Phase I - 300 MW	Prehistoric	Very Low	Travel
300 MW Alternative	T-52	Phase II - 450 MW Area	Prehistoric	Very Low	Travel
300 MW Alternative	Wixon Gravel	Access Road	Historic	None	Extraction/ Gravel Mining
300 MW Alternative	National Historic Trail	Phase I - 300 MW & Phase II - 450 MW Area	Historic	Very Low	Transportation
300 MW Alternative	Portion of San Diego and Arizona Railroad	½-mile architectural buffer	Historic - Built	None	Transportation

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
300 MW Alternative	Plaster City	½-mile architectural buffer	Historic - Built	None	Mining/ Processing
300 MW Alternative	Portion of US Gypsum Rail Line	½-mile architectural buffer	Historic - Built	None	Transportation
300 MW Alternative	CA-IMP-7886 (Highway 80)	½-mile architectural buffer	Historic - Built	None	Transportation
300 MW Alternative	Dixie Drain	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
300 MW Alternative	Fern Canal and Drain	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
300 MW Alternative	Fig Canal	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
300 MW Alternative	Forget-Me-Not Canal	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
300 MW Alternative	Foxglove Canal	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
300 MW Alternative	Salt Creek Drain 2	Phase I - Water Line 150-Foot Corridor	Historic - Built	None	Water Conveyance
300 MW Alternative	Liebert Road Residence	Phase I - Water Line 150-Foot Corridor	Historic - Built		Habitation
300 MW Alternative	Fern Check	Phase I - Water Line 150-Foot Corridor	Historic - Built	-	Water Conveyance
300 MW Alternative	West Side Main Canal, including Pump 6	Phase I - Water Line 150-Foot Corridor	Historic - Built	-	Water Conveyance

Table Note 1: Does not include isolated occurrences

Table Key: APE = Area of Potential Effects; MW = megawatts.

Table I-4 Newly Recorded and Updated Archaeological and Built Sites within the APE for the Drainage Avoidance #1 Alternative (Table Note 1)

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	CJA-S2-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	CJA-S2-005	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	CJA-S2-006	200-Foot Buffer	Indeterminate	Very Low	Surveying
Drainage Avoidance #1 Alternative	CJA-S2-007	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #1 Alternative	CJA-S2-008	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Habitation
Drainage Avoidance #1 Alternative	CJA-S2-010	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
Drainage Avoidance #1 Alternative	CJA-S2-015	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #1 Alternative	CJA-S2-017	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	County Gravel Mine	Phase I - 300 MW & Phase II - 450 MW Area	Historic	None	Extraction/ Gravel Mining
Drainage Avoidance #1 Alternative	DRK-002 (CA-IMP- 2190)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-004 (CA-IMP- 2003)	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
Drainage Avoidance #1 Alternative	DRK-005 (CA-IMP- 2002)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	DRK-009 (CA-IMP- 2194, CA-IMP-2193)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-010 (CA-IMP- 2004)	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
Drainage Avoidance #1 Alternative	DRK-011	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-012	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-013	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-015	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/
Drainage Avoidance #1 Alternative	DRK-016 (CA-IMP- 2000)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-017	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/
Drainage Avoidance #1 Alternative	DRK-019	Phase I - 300 MW	Prehistoric	Very Low	Ceramics
Drainage Avoidance #1 Alternative	DRK-020	Phase I - 300 MW	Historic	Very Low	Surveying
Drainage Avoidance #1 Alternative	DRK-021	Phase I - 300 MW	Historic	Very Low	Surveying
Drainage Avoidance #1 Alternative	DRK-022	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-023	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	DRK-024	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-025	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-026	Phase II - 450 MW Area	Historic	Very Low	Rock Feature
Drainage Avoidance #1 Alternative	DRK-027	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-028	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-029	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-030	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #1 Alternative	DRK-031	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-032	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-033	Phase I - 300 MW	Historic	Very Low	Surveying
Drainage Avoidance #1 Alternative	DRK-034	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-036	Phase II - 450 MW Area	Historic	Very Low	Surveying
Drainage Avoidance #1 Alternative	DRK-037	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	DRK-042	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-043	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-044	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-046	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-047	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-048	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-049	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-050	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-051	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-052	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/
Drainage Avoidance #1 Alternative	DRK-S2-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-S2-002	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
Drainage Avoidance #1 Alternative	DRK-S2-006	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Burled Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	DRK-S2-007	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-S2-008	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-S2-009	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #1 Alternative	DRK-S2-010	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Refuse/ Rock Feature
Drainage Avoidance #1 Alternative	DRK-S2-011	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
Drainage Avoidance #1 Alternative	DRK-S2-012	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
Drainage Avoidance #1 Alternative	DRK-S2-013	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-S2-014	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Refuse
Drainage Avoidance #1 Alternative	DRK-S2-015	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
Drainage Avoidance #1 Alternative	DRK-S2-018	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation Prehistoric
Drainage Avoidance #1 Alternative	DRK-S2-021	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation Prehistoric
Drainage Avoidance #1 Alternative	DRK-S2-022	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	DRK-S2-023	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation Prehistoric
Drainage Avoidance #1 Alternative	DRK-S2-026	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-S2-027	Phase II - 450 MW Area	Indeterminate	Low to Moderate	Rock Feature
Drainage Avoidance #1 Alternative	DRK-S2-028	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Habitation Prehistoric/ Refuse
Drainage Avoidance #1 Alternative	DRK-S2-029	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-S2-030	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	DRK-S2-031	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse
Drainage Avoidance #1 Alternative	DRK-S2-032	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse
Drainage Avoidance #1 Alternative	DRK-S2-033	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-002	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-010A	Phase I - 300 MW	Prehistoric	Very Low	Ceramics
Drainage Avoidance #1 Alternative	EBR-015	Access Road	Historic	Low to Moderate	Refuse
Drainage Avoidance #1 Alternative	EBR-016	Access Road	Historic	Low to Moderate	Refuse

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	EBR-020	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-021	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-022	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
Drainage Avoidance #1 Alternative	EBR-023	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-025	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-026	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #1 Alternative	EBR-061	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-062	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-064	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-065	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-066	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #1 Alternative	EBR-069	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-070	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	EBR-072	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-073	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-077	Phase II - 450 MW Area	Prehistoric	Very Low	Ceramics
Drainage Avoidance #1 Alternative	EBR-079	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-080	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-081	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-083	200-Foot Buffer	Historic	Very Low	Surveying
Drainage Avoidance #1 Alternative	EBR-084	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-085	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Ceramics
Drainage Avoidance #1 Alternative	EBR-086	Phase II - 450 MW Area	Historic	Low to Moderate	Refuse
Drainage Avoidance #1 Alternative	EBR-087	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #1 Alternative	EBR-092	Phase II - 450 MW Area	Historic	Very Low	Refuse/ Other Historic
Drainage Avoidance #1 Alternative	EBR-093	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Ceramics

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	EBR-095	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-096	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-097	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #1 Alternative	EBR-098	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-099	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-100	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-101	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-102	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-103	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-104	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-106	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-107	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-108	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	EBR-109	Phase II - 450 MW Area	Multicomponent	Very Low	Refuse
Drainage Avoidance #1 Alternative	EBR-202	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-204	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-205	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EBR-207	Access Road	Historic	Low to Moderate	Refuse
Drainage Avoidance #1 Alternative	EBR-207	Access Road	Historic	Low to Moderate	Refuse
Drainage Avoidance #1 Alternative	EBR-213	Phase II - 450 MW Area	Prehistoric	Moderate	Habitation Prehistoric with Human Remains/ Refuse
Drainage Avoidance #1 Alternative	EBR-222	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Habitation Prehistoric
Drainage Avoidance #1 Alternative	EBR-223	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EJK-S2-001	Phase II - 450 MW Area	Indeterminate	Low to Moderate	Rock Feature
Drainage Avoidance #1 Alternative	EJK-S2-002	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
Drainage Avoidance #1 Alternative	EJK-S2-003	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
Drainage Avoidance #1 Alternative	EJK-S2-004	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	EJK-S2-005	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EJK-S2-006	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EJK-S2-010	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EJK-S2-011 (CA-IMP- 2093)	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EJK-S2-014	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EJK-S2-016	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	EJK-S2-017	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	H-06	Phase I - 300 MW	Historic	Very Low	Transportation
Drainage Avoidance #1 Alternative	HR-02	Phase II - 450 MW Area	Historic	Very Low	Transportation
Drainage Avoidance #1 Alternative	HR-04	Phase II - 450 MW Area	Historic	Very Low	Transportation
Drainage Avoidance #1 Alternative	JF-001	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JF-003	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JF-003A	Phase I - 300 MW	Historic	Very Low	Surveying

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	JF-004	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JF-005	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JF-006	Phase I - 300 MW	Historic	Very Low	Surveying
Drainage Avoidance #1 Alternative	JF-008	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #1 Alternative	JF-015	Phase II - 450 MW Area	Historic	Low to Moderate	Surveying
Drainage Avoidance #1 Alternative	JF-018	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JF-019	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JF-042	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
Drainage Avoidance #1 Alternative	JF-043	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Refuse
Drainage Avoidance #1 Alternative	JFB-004	Phase I - 300 MW	Historic	Very Low	Surveying
Drainage Avoidance #1 Alternative	JFB-009A	Phase I - 300 MW	Historic	Very Low	Surveying
Drainage Avoidance #1 Alternative	JFB-010	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
Drainage Avoidance #1 Alternative	JFB-011	Phase II - 450 MW Area	Historic	Very Low	Refuse

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	JFB-012	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-001 (CA-IMP-3752, CA-IMP-3753, CA- IMP-8731)	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #1 Alternative	JM-002	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-003	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-005	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-006	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-007	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-008	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-009 (CA-IMP-2083)	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-011	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-012	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-017	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-020	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	JM-021	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Refuse/ Rock Feature
Drainage Avoidance #1 Alternative	JM-023	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-026	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Habitation Prehistoric/ Refuse
Drainage Avoidance #1 Alternative	JM-027	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-028	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-029	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/
Drainage Avoidance #1 Alternative	JM-030	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-032	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-033	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-035	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-036	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/
Drainage Avoidance #1 Alternative	JM-037	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/
Drainage Avoidance #1 Alternative	JM-038	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	JM-039 (CA-IMP-4337)	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-041	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-042	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JM-043	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JMR-004	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JMR-005	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Feature/ Refuse
Drainage Avoidance #1 Alternative	JMR-006	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Feature
Drainage Avoidance #1 Alternative	JMR-008	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JMR-009	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JMR-011	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JMR-012	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JMR-013	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	JMR-014	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
Drainage Avoidance #1 Alternative	JMR-016	Phase II - 450 MW Area	Indeterminate	Very Low	Surveying
Drainage Avoidance #1 Alternative	JMR-018	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	JMR-021	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Ceramics
Drainage Avoidance #1 Alternative	JMR-025	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	KRM-001	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	KRM-S2-002	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	KRM-S2-003	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	LL-002A	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	LL-018	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	LL-019	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
Drainage Avoidance #1 Alternative	LL-020	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	LL-022A	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	LL-024	200-Foot Buffer	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Rock Feature
Drainage Avoidance #1 Alternative	LL-026	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	MN-S2-002	Phase II - 450 MW Area	Prehistoric		Travel
Drainage Avoidance #1 Alternative	National Historic Trail	Phase I - 300 MW & Phase II - 450 MW Area	Historic	Very Low	Transportation
Drainage Avoidance #1 Alternative	PRM-S2-001	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	PRM-S2-003	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	PRM-S2-009	Access Road	Multicomponent	Low to Moderate	Refuse
Drainage Avoidance #1 Alternative	PRM-S2-009	Access Road	Multicomponent	Low to Moderate	Refuse
Drainage Avoidance #1 Alternative	PRM-S2-010	Access Road	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Ceramics/ Refuse
Drainage Avoidance #1 Alternative	PRM-S2-014	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #1 Alternative	PRM-S2-016	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Other Prehistoric

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	PRM-S2-017	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	PRM-S2-018 (CA-IMP- 4343)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Habitation Prehistoric
Drainage Avoidance #1 Alternative	PRM-S2-019	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #1 Alternative	RAN-001	Phase I - 300 MW	Historic	Very Low	Surveying
Drainage Avoidance #1 Alternative	RAN-002	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-004	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Feature
Drainage Avoidance #1 Alternative	RAN-006	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #1 Alternative	RAN-007	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-008	Phase II - 450 MW Area	Historic	Very Low	Surveying
Drainage Avoidance #1 Alternative	RAN-009	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #1 Alternative	RAN-010	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-011	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Refuse

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	RAN-012	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Features/ Ceramics/ Refuse
Drainage Avoidance #1 Alternative	RAN-013	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #1 Alternative	RAN-014	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #1 Alternative	RAN-015	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #1 Alternative	RAN-016	Phase II - 450 MW Area	Historic	Low to Moderate	Surveying
Drainage Avoidance #1 Alternative	RAN-017	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Habitation Historic
Drainage Avoidance #1 Alternative	RAN-018	Phase II - 450 MW Area	Historic	Low to Moderate	Surveying
Drainage Avoidance #1 Alternative	RAN-019	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #1 Alternative	RAN-020	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #1 Alternative	RAN-024	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-025	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-026	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	RAN-027	Phase I - 300 MW	Historic	Very Low	Refuse/ Rock Feature
Drainage Avoidance #1 Alternative	RAN-028	200-Foot Buffer	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-029	200-Foot Buffer	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-030 (CA-IMP- 2156)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-034	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Habitation Historic
Drainage Avoidance #1 Alternative	RAN-035	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #1 Alternative	RAN-036	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Feature/ Refuse
Drainage Avoidance #1 Alternative	RAN-055	Phase II - 450 MW Area	Prehistoric	Very Low	Habitation Prehistoric
Drainage Avoidance #1 Alternative	RAN-057	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #1 Alternative	RAN-061	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/
Drainage Avoidance #1 Alternative	RAN-063	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-064	Phase II - 450 MW Area	Indeterminate	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	RAN-066	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-067	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-068	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-069	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-073	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-074	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-081	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-092	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-095	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-412C	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #1 Alternative	RAN-412F	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #1 Alternative	RAN-413	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-416	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Habitation Prehistoric

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	RAN-417	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-418	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #1 Alternative	RAN-419	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-420	Phase I - Transmission Line 300-Foot Corridor	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Ceramics/ Refuse
Drainage Avoidance #1 Alternative	RAN-424 (CA-IMP- 4578, CA-IMP-1007, CA-IMP-1006, CA- IMP-1008, CA-IMP- 8744, CA-IMP-4348)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Moderate	Habitation Prehistoric
Drainage Avoidance #1 Alternative	RAN-426	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-428 (CA-IMP- 4344)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-430 (CA-IMP- 4342)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-431	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-433	Phase I - Transmission Line 300-Foot Corridor	Multicomponent	Very Low	Resource Extraction/ Processing/ Ceramics/ Refuse/ Rock Feature
Drainage Avoidance #1 Alternative	RAN-434	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	RANA-003	Phase I - 300 MW	Historic	Very Low	Military
Drainage Avoidance #1 Alternative	RANA-004	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance	RAN-S2-001	Phase I - 300 MW	Indeterminate	Very Low	Surveying
Drainage Avoidance #1 Alternative	RAN-S2-005	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance	RAN-S2-006	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-S2-010	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	RAN-S2-011H	Phase I - 300 MW	Historic	Very Low	Other Historic
Drainage Avoidance #1 Alternative	RAN-S2-012H	Phase I - 300 MW	Historic	Very Low	Other Historic
Drainage Avoidance #1 Alternative	RAN-S2-015	200-Foot Buffer	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	SM-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	SM-002	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	SM-003	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	SM-004	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	SM-005	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	SM-006	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	SM-S2-002	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
Drainage Avoidance #1 Alternative	SM-S2-003	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
Drainage Avoidance #1 Alternative	SM-S2-004	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
Drainage Avoidance #1 Alternative	SM-S2-005	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
Drainage Avoidance #1 Alternative	SM-S2-007	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	SM-S2-008	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	SM-S2-010	Phase I - 300 MW	Historic	Very Low	Rock Feature
Drainage Avoidance #1 Alternative	SM-S2-011	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
Drainage Avoidance #1 Alternative	SM-S2-012	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	SM-S2-021	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	SM-S2-031	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	SM-S2-032	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	SM-S2-039	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #1 Alternative	SM-S2-040	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	SM-S2-041	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #1 Alternative	T-02	Phase II - 450 MW Area	Prehistoric	Very Low	Travel
Drainage Avoidance #1 Alternative	T-03	Phase II - 450 MW Area	Multicomponent	Very Low	Travel
Drainage Avoidance #1 Alternative	T-06	Access Road	Multicomponent	Very Low	Travel
Drainage Avoidance #1 Alternative	T-06	Access Road	Multicomponent	Very Low	Travel
Drainage Avoidance #1 Alternative	T-17	Phase I - 300 MW	Prehistoric	Very Low	Travel
Drainage Avoidance #1 Alternative	T-18	Phase I - 300 MW	Prehistoric	Very Low	Travel
Drainage Avoidance #1 Alternative	T-21A	Phase I - 300 MW	Prehistoric	Very Low	Travel
Drainage Avoidance #1 Alternative	T-21B	Phase I - 300 MW	Prehistoric	Very Low	Travel
Drainage Avoidance #1 Alternative	T-42	Phase I - 300 MW	Prehistoric	Very Low	Travel

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #1 Alternative	T-43A	Phase I - 300 MW	Prehistoric	Very Low	Travel
Drainage Avoidance #1 Alternative	T-43B	Phase I - 300 MW	Prehistoric	Very Low	Travel
Drainage Avoidance #1 Alternative	T-52	Phase II - 450 MW Area	Prehistoric	Very Low	Travel
Drainage Avoidance #1 Alternative	T-S2-002	Phase I - 300 MW	Prehistoric	Very Low	Travel
Drainage Avoidance #1 Alternative	Wixon Gravel	Access Road	Historic	None	Extraction/ Gravel Mining

Table Note 1: Does not include isolated occurrences

Table Key: APE = Area of Potential Effects; MW = megawatts.

Table I-5 Newly Recorded and Updated Archaeological and Built Sites within the APE for the Drainage Avoidance #2 Alternative (Table Note 1)

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #2 Alternative	CJA-S2-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	County Gravel Mine	Phase I - 300 MW & Phase II - 450 MW Area	Historic	None	Extraction/ Gravel Mining
Drainage Avoidance #2 Alternative	DRK-002 (CA-IMP- 2190)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-004 (CA-IMP- 2003)	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
Drainage Avoidance #2 Alternative	DRK-005 (CA-IMP- 2002)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-009 (CA-IMP- 2194, CA-IMP-2193)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-010 (CA-IMP- 2004)	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
Drainage Avoidance #2 Alternative	DRK-011	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-012	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-013	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-015	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-016 (CA-IMP- 2000)	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #2 Alternative	DRK-017	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-019	Phase I - 300 MW	Prehistoric	Very Low	Ceramics
Drainage Avoidance #2 Alternative	DRK-020	Phase I - 300 MW	Historic	Very Low	Surveying
Drainage Avoidance #2 Alternative	DRK-021	Phase I - 300 MW	Historic	Very Low	Surveying
Drainage Avoidance #2 Alternative	DRK-022	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-023	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/
Drainage Avoidance #2 Alternative	DRK-024	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-025	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/
Drainage Avoidance #2 Alternative	DRK-026	Phase II - 450 MW Area	Historic	Very Low	Rock Feature
Drainage Avoidance #2 Alternative	DRK-027	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/
Drainage Avoidance #2 Alternative	DRK-028	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/
Drainage Avoidance #2 Alternative	DRK-029	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/
Drainage Avoidance #2 Alternative	DRK-030	Phase II - 450 MW Area	Historic	Very Low	Refuse

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #2 Alternative	DRK-031	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-032	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-037	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-042	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoldance #2 Alternative	DRK-043	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-044	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-046	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-047	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-048	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-049	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoldance #2 Alternative	DRK-050	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-051	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	DRK-052	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #2 Alternative	DRK-S2-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EBR-010A	Phase I - 300 MW	Prehistoric	Very Low	Ceramics
Drainage Avoidance #2 Alternative	EBR-020	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EBR-021	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EBR-022	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing/ Rock Feature
Drainage Avoidance #2 Alternative	EBR-023	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EBR-025	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/
Drainage Avoidance #2 Alternative	EBR-026	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #2 Alternative	EBR-061	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EBR-062	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EBR-064	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EBR-065	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EBR-093	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Ceramics

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #2 Alternative	EBR-095	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance	EBR-096	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EBR-097	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance	EBR-098	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance	EBR-099	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance	EBR-100	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EBR-102	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EJK-S2-001	Phase II - 450 MW Area	Indeterminate	Low to Moderate	Rock Feature
Drainage Avoidance #2 Alternative	EJK-S2-002	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
Drainage Avoidance #2 Alternative	EJK-\$2-003	Phase II - 450 MW Area	Indeterminate	Very Low	Rock Feature
Drainage Avoidance #2 Alternative	EJK-\$2-005	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EJK-S2-006	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EJK-S2-010	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #2 Alternative	EJK-S2-011 (CA-IMP- 2093)	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EJK-S2-014	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EJK-S2-016	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	EJK-S2-017	Phase II - 450 MW Area	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	H-06	Phase I - 300 MW	Historic	Very Low	Transportation
Drainage Avoidance #2 Alternative	JF-001	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	JF-003	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	JF-003A	Phase I - 300 MW	Historic	Very Low	Surveying
Drainage Avoidance #2 Alternative	JF-004	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	JF-005	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	JF-006	Phase I - 300 MW	Historic	Very Low	Surveying
Drainage Avoidance #2 Alternative	JF-008	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #2 Alternative	JF-018	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #2 Alternative	JF-019	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	JFB-004	Phase I - 300 MW	Historic	Very Low	Surveying
Drainage Avoidance #2 Alternative	JFB-009A	Phase I - 300 MW	Historic	Very Low	Surveying
Drainage Avoidance #2 Alternative	JFB-010	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
Drainage Avoidance #2 Alternative	JFB-011	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #2 Alternative	JFB-012	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	MN-S2-002	Phase II - 450 MW Area	Prehistoric		Travel
Drainage Avoidance #2 Alternative	National Historic Trail	Phase I - 300 MW & Phase II - 450 MW Area	Historic	Very Low	Transportation
Drainage Avoidance #2 Alternative	RAN-001	Phase I - 300 MW	Historic	Very Low	Surveying
Drainage Avoidance #2 Alternative	RAN-002	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	RAN-005	Phase II - 450 MW Area	Historic	Very Low	Surveying
Drainage Avoidance #2 Alternative	RAN-004	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Feature
Drainage Avoidance #2 Alternative	RAN-006	Phase II - 450 MW Area	Historic	Very Low	Refuse

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoldance #2 Alternative	RAN-007	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	RAN-008	Phase II - 450 MW Area	Historic	Very Low	Surveying
Drainage Avoidance #2 Alternative	RAN-009	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #2 Alternative	RAN-010	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	RAN-011	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Refuse
Drainage Avoldance #2 Alternative	RAN-012	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Rock Features/ Ceramics/ Refuse
Drainage Avoidance #2 Alternative	RAN-013	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #2 Alternative	RAN-014	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #2 Alternative	RAN-015	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #2 Alternative	RAN-016	Phase II - 450 MW Area	Historic	Low to Moderate	Surveying
Drainage Avoidance #2 Alternative	RAN-017	Phase II - 450 MW Area	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Habitation Historic
Drainage Avoidance #2 Alternative	RAN-018	Phase II - 450 MW Area	Historic	Low to Moderate	Surveying

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #2 Alternative	RAN-019	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #2 Alternative	RAN-020	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #2 Alternative	RAN-022	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Habitation Historic
Drainage Avoidance #2 Alternative	RAN-026	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	RAN-027	Phase I - 300 MW	Historic	Very Low	Refuse/ Rock Feature
Drainage Avoidance #2 Alternative	RAN-034	Phase II - 450 MW Area	Multicomponent	Very Low	Resource Extraction/ Processing/ Habitation Historic
Drainage Avoidance #2 Alternative	RAN-035	Phase II - 450 MW Area	Historic	Very Low	Refuse
Drainage Avoidance #2 Alternative	RAN-412C	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #2 Alternative	RAN-412F	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #2 Alternative	RAN-413	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	RAN-416	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Habitation Prehistoric
Drainage Avoidance #2 Alternative	RAN-417	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #2 Alternative	RAN-418	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #2 Alternative	RAN-419	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	RAN-420	Phase I - Transmission Line 300-Foot Corridor	Multicomponent	Low to Moderate	Resource Extraction/ Processing/ Ceramics/ Refuse
Drainage Avoidance #2 Alternative	RAN-424 (CA-IMP- 4578, CA-IMP-1007, CA-IMP-1006, CA-IMP- 1008, CA-IMP-8744, CA-IMP-4348)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Moderate	Habitation Prehistoric
Drainage Avoidance #2 Alternative	RAN-426	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	RAN-428 (CA-IMP- 4344)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	RAN-430 (CA-IMP- 4342)	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	RAN-431	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	RAN-433	Phase I - Transmission Line 300-Foot Corridor	Multicomponent	Very Low	Resource Extraction/ Processing/ Ceramics/ Refuse/ Rock Feature
Drainage Avoidance #2 Alternative	RAN-434	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/
Drainage Avoidance #2 Alternative	RAN-S2-005	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #2 Alternative	RAN-S2-006	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	RAN-S2-010	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	RAN-S2-011H	Phase I - 300 MW	Historic	Very Low	Other Historic
Drainage Avoidance #2 Alternative	RAN-S2-012H	Phase I - 300 MW	Historic	Very Low	Other Historic
Drainage Avoidance #2 Alternative	SM-001	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	SM-002	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	SM-003	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	SM-004	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	SM-005	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	SM-006	Phase II - 450 MW Area	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	SM-S2-003	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
Drainage Avoidance #2 Alternative	SM-S2-004	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature
Drainage Avoidance #2 Alternative	SM-S2-005	Phase I - 300 MW	Indeterminate	Very Low	Rock Feature

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #2 Alternative	SM-S2-007	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	SM-S2-008	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	SM-S2-010	Phase I - 300 MW	Historic	Very Low	Rock Feature
Drainage Avoidance #2 Alternative	SM-S2-011	Phase I - 300 MW	Multicomponent	Very Low	Resource Extraction/ Processing/ Surveying
Drainage Avoidance #2 Alternative	SM-S2-012	Phase I - 300 MW	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	SM-S2-039	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Low to Moderate	Resource Extraction/ Processing/ Ceramics
Drainage Avoidance #2 Alternative	SM-S2-040	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoldance #2 Alternative	SM-S2-041	Phase I - Transmission Line 300-Foot Corridor	Prehistoric	Very Low	Resource Extraction/ Processing
Drainage Avoidance #2 Alternative	T-02	Phase II - 450 MW Area	Prehistoric	Very Low	Travel
Drainage Avoidance #2 Alternative	T-03	Phase II - 450 MW Area	Multicomponent	Very Low	Travel
Drainage Avoidance #2 Alternative	T-18	Phase I - 300 MW	Prehistoric	Very Low	Travel
Drainage Avoidance #2 Alternative	T-21A	Phase I - 300 MW	Prehistoric	Very Low	Travel
Drainage Avoidance #2 Alternative	T-21B	Phase I - 300 MW	Prehistoric	Very Low	Travel

Programments.

Alternative	Temporary Site Number	Project Phase	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Site Class
Drainage Avoidance #2 Alternative	T-42	Phase I - 300 MW	Prehistoric	Very Low	Travel
Drainage Avoidance #2 Alternative	T-43A	Phase I - 300 MW	Prehistoric	Very Low	Travel
Drainage Avoidance #2 Alternative	T-43B	Phase I - 300 MW	Prehistoric	Very Low	Travel

Table Note 1: Does not include isolated occurrences

Table Key: APE = Area of Potential Effects; MW = megawatts.

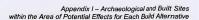
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